Transit: "I have seen the future and it works"

November 12, 1973

RAILWAY AGE

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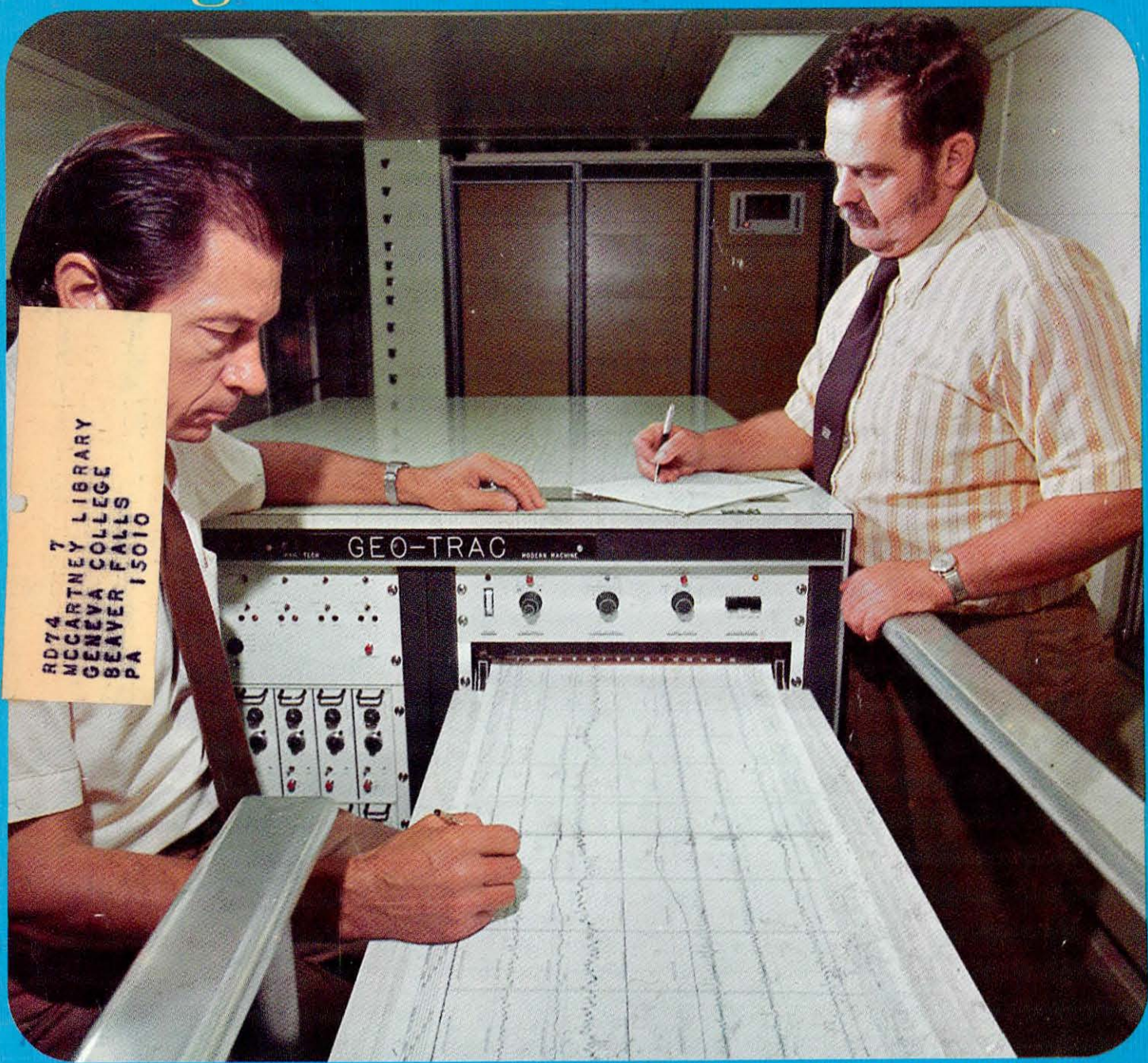
One way to fight rising M/W costs



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Santa Fe's new track geometry inspection car

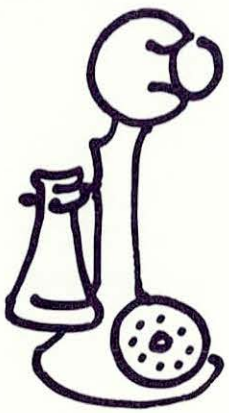
Petroleum and You (A History of the Former)

Chapter Six: Technology on the March

In the period between the World Wars new refinery processes moved to the forefront, forcing old refinery processes to move to the aftback. Thermal cracking was developed in an attempt to obtain a greater yield of gasoline from petroleum. In this process the heavier hydrocarbon molecules found in crude oil were broken down to form the lighter molecules which go to make up gasoline. And as an unexpected boon it was found that the process also created a gasoline with superior burning characteristics, which in turn allowed an increase in the compression ratio of auto engines, thus paving the way for such modern-day breakthroughs as the fur-covered rearview mirror and styrofoam dice.

Two modern-day automotive breakthroughs.

Thermal cracking was, however, soon supplanted, thanks to the experiments of a French-born engineer named Eugene Jules Houdry. In 1935 Houdry, or Eugene Jules Houdry as he was called by his associates, discovered that the addition of a catalyst to the process—usually an oxide or silicates of aluminum and magnesium —greatly increased the rate of cracking and also produced a far superior product. But much to the shame of the industry his discovery was not implemented for more than a year because someone had misplaced his phone number.



Telephone, circa 1935.

Luckily it was later found behind a chiffionier and his work made possible the high-octane aviation fuel used in World War II.

Also in the 1930s polymerization began to loom large, and ultimately, as a result of popular outcry, it became an established practice. This process dealt with those hydrocarbon molecules in crude oil which were even lighter than the molecules making up gasoline and which had received for years the kind of mild contempt usually meted out to a snappy dresser.

Opal cufflink found along with phone number behind chiffionier of acknowledged snappy dresser.

But with polymerization these lighter molecules can be linked together, making yet another way to obtain a higher gasoline yield from petroleum. By 1942 it was an open secret that World War II had begun, and the petroleum industry met the challenge with characteristic pluck. Aside from the high octane fuels demanded by the air war, the industry supplied untold amounts of lubricants and fuel oils vital to the war effort. In addition the petroleum industry developed the primary ingredient in fire-fighting foam, plus Amprol 8, a special substance to protect machinery from dampness, corrosion, and the heartbreak of psoriasis.

This is the sixth chapter in a seven-part series presented as a salute to the industry. In addition we would like you to know that we offer a full line of lube oils, greases, cutting oils, fuels, motor oils, white oils, LP-Gas, and specialty products, with a complete network of service facilities.

For further information and for a booklet of all seven chapters of the *Petroleum and You* series write to Mr. Frank Laudonio, Atlantic Richfield Company, P.O. Box 71169, Los Angeles 90071. (You might also indicate any product interest and your business.)

ARCO

Petroleum Products of
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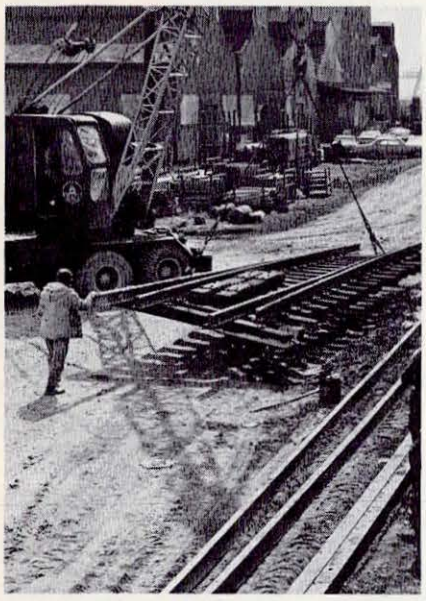
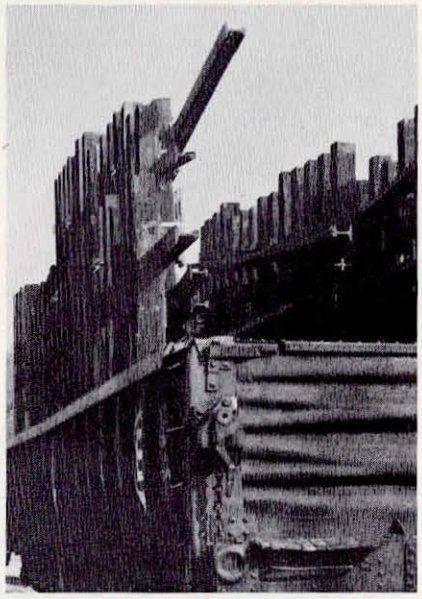
Circle 2 on coupon page 59

WHAT'S THE BEST WAY TO BUY SWITCHES AND TURNOUTS?



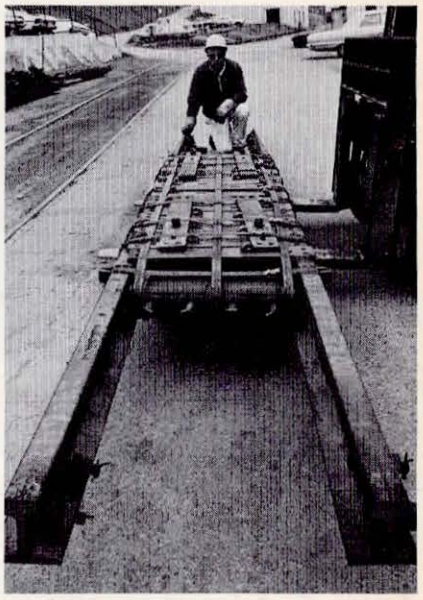
Panelized Switches?

Bethlehem developed the panelized switch idea a few years ago, and railroads have bought hundreds of them since. We shop-fabricate and assemble the switches at our Steelton, Pa., plant, then ship the assemblies to the site as complete units. All you have to do is position them, install the headblock ties, and complete the ballasting.



Panelized Turnouts?

They are now available too. Our engineers have worked out a secure method of loading turnout panels in a gondola car—two complete turnouts to a car. Your labor cost is cut to the bone, and installation is possible within four hours.



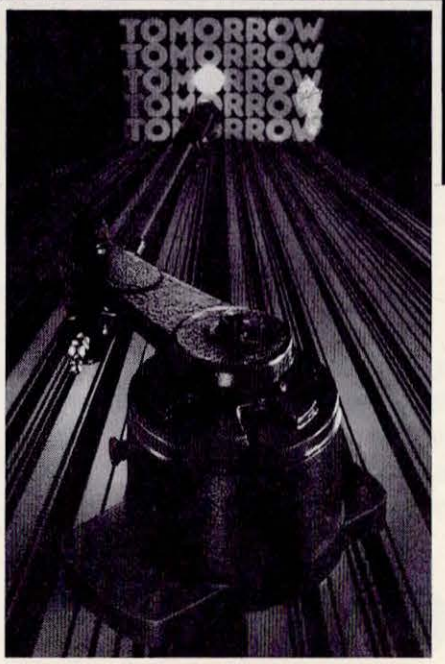
Switch-Paks?

Bethlehem's latest time-and-money saving convenience is the Switch-Pak, a "kit" consisting of two switch points, two heel blocks, plus all the necessary plates, bolts, and rods for one complete switch. All items are firmly strapped together. You can choose from a variety of lengths and rail sections, and simply stack the switches in your storehouse until you need them.

In a similar way, we can also package component parts for complete turnouts—frogs and hook tie plates, closure rails, guardrails, and other needed materials. We'll be glad to help you adopt these new buying ideas.
Bethlehem Steel Corporation, Bethlehem, PA 18016

Bethlehem BETHLEHEM STEEL

Houdaille Shock Absorbers. Along for the ride.



Everything on the State of the Art Car has to be the best. The *very* best. In performance. In quality. And the shock absorbers on that car are Houdaille.

The people who built the car specified Houdaille. Because Houdaille Rotary Shocks are dependable. They outlast and they outperform every other shock absorber made. *And* Houdaille makes the only rotary shock absorber that can be adjusted readily from the *outside*. And that's important. Really important.

SOAC is just the beginning. Of the new age of rapid transit. And Houdaille is a part of it. So come along for the ride. With Houdaille.

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536 E. Delavan Avenue / Buffalo, New York 14211

Circle 5 on coupon page 59

RAILWAY AGE

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Inside

LUTHER MILLER

TRACK GEOMETRY—PLUS

It isn't every day that a railroad car—especially a railroad track inspection car—is considered to be glamorous enough to go on television. But the Santa Fe is sufficiently proud of Track Geometry Car 85 that a television commercial has been built around it. The story of Car 85—and its implications—is told by Engineering Editor Merwin H. Dick (p. 40).

As Santa Fe President John S. Reed observed at a recent meeting with security analysts and financial reporters in New York, Car 85 appears to be a sophisticated notch ahead of all the others in its class. Not only will this car, if it performs as advertised, contribute to the all-important task of maximizing the maintenance dollar and waging war on rising m/w costs; it may also have something important to say, one day, about how freight cars are designed. If so, an important new Santa Fe trail will have been blazed.

EUROPE IN TRANSIT: "I HAVE SEEN THE FUTURE. . ."

In the field of visual communications, few names are more respected than that of George Dusenbury. He was director of visual research for (and an editor of) Look during an important period of that magazine's development. For a number of years he was presentation consultant to the McGraw-Hill magazines, including Business Week. "His ideas changed the whole course of business-paper publishing," one senior McGraw-Hill officer has said. He taught a course in the technique of the picture story at New York University.

In recent years, Dusenbury has been consultant to Simmons-Boardman's magazines. He played a major role in conceiving and presenting some of the landmark issues of Railway Age—for example, the "Outrage" issue which led to important regulatory reforms in 1958; and the "Trap" issue which first documented the tangle of obsolete work-rules that were choking the railroads.

Not long ago, hearing that Dusenbury was taking the family on an "intermodal" tour of Europe, we asked him to jot down his observations on the rail transit systems he encountered. He did that—and he did more. His "underground diary" as presented in this issue (p. 48) not only is a masterpiece of visual *and* verbal communication; it is also a chilling critique of American transportation planning.

The thesis of the piece is this: "Of all the vast riches lying under the earth's surface—oil, coal, ores, precious metals, diamonds—perhaps the greatest riches of all are the unspoiled spaces under our great cities—spaces where we're given a second chance to solve the problem of transportation within the city."

The conclusion, for Americans, is not heartening: "We used to be the New World. But now we're the Old World. And while Europe is getting newer and newer, we're getting older and older."

What's right with European transit? It's as modern as tomorrow.

What's wrong with U.S. rail transit? It's in the position, suggests Dusenbury, that GM would be in "if most of its demonstration selling were confined to giving rides in 1903 Buicks."

Rail-riding Pneumatractors speed track work.

A large Western road operates 18 Schramm Pneumatractor® self-propelled air compressors with retractable railcar wheels. These sturdy units save time by getting to and from job sites speedily, by being able to move quickly from rails to roads or right-of-way, and by providing air instantly.

Depending on model, the Pneumatractors provide either 160 or 300 cfm of air at 100 psi, to power paving breakers, torque wrenches, and spike drivers.

Heart of the Pneumatractor is a sturdy, efficient Schramm reciprocating compressor. Ordinary motor oil is used instead of costly compressor lubricants. Maintenance is simple. Repairs can be performed quickly by any engine mechanic.

A wide range of options is available, to adapt the Pneumatractor to a variety of specific railway uses. For full details, get in touch with your Schramm dealer today, or write to us in West Chester.

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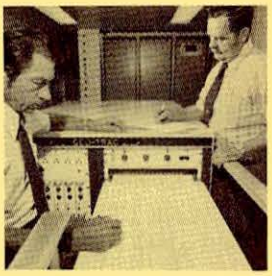
RAILWAY AGE

NOVEMBER 12, 1973

FEATURES



COVER
Santa Fe's new track geometry inspection car was photographed by Orville Brent, ATSF system photographer at Chicago.

ENGINEERING

Santa Fe's new track geometry car: "One notch ahead of all the others" . . . . . p. 26

MOVING PEOPLE

"I have seen the future and it works" . . . . . p. 48

New herbicide for total vegetation control . . . . . p. 36

St. Louis project seeks to speed MP terminal movements . . . . . p. 40

Rebuilding the Northeast railroads . . . . . p. 43

NEWS

Car orders double 1972 pace . . . . . p. 8

Southern will invest $160 million . . . . . p. 8

NW will boost '74 spending . . . . . p. 8

Milwaukee sets '74 spending plans . . . . . p. 8

Rail business boosts Pullman . . . . . p. 8

Budd's rail backlog: $50 million . . . . . p. 8

Eaton wins "emeritus" title at Chessie . . . . . p. 8

French Turbos: The first month . . . . . p. 10

$24.5-million yard is planned by L&N . . . . . p. 10

Checking on L&D—while it happens . . . . . p. 10

For western grains, 10 special trains . . . . . p. 10

The next harvest: Rails are ready . . . . . p. 34

Houston nixes engine tax for transit . . . . . p. 46

Ontario premier cited by ATA . . . . . p. 46

Southern asks fare increase . . . . . p. 46

Arbitration allows Dallas route . . . . . p. 46

Stainless-steel presentation available . . . . . p. 46

MARTA funding can complete system . . . . . p. 46

ATA schedules '74 meetings . . . . . p. 46

1,215 diesels added to fleet . . . . . p. 64

Adams asks electrification study . . . . . p. 64

Rate hike request due—but when? . . . . . p. 64

Every little bit helps— . . . . . p. 64

Getting empty box cars back home—fast . . . . . p. 64

Another TOFC/COFC expansion . . . . . p. 64

From worse to bad . . . . . p. 64

OPINION

INSIDE — Track geometry—plus . . . . . p. 5

LINES ON LABOR — Strike? Forget it . . . . . p. 14

VIEWPOINT — "It may not work, but let's give it a try" . . . . . p. 68

WATCHING WASHINGTON — Subsidy sentiment grows . . . . . p. 13

DEPARTMENTS

Advertising Sales Offices . . . . . p. 67

Carloadings . . . . . p. 63

Market Outlook . . . . . p. 63

Moving People . . . . . p. 46

New Products . . . . . p. 49

People in the News . . . . . p. 57

Piggyback Loadings . . . . . p. 63

Short and Significant . . . . . p. 8

Transit Personnel . . . . . p. 62

Short and Significant

CAR ORDERS DOUBLE 1972 PACE

Through September 1973, orders had been placed for 71,526 new and rebuilt freight cars, virtually doubling the rate for nine months of 1972 when the total was 36,356. There were 8,142 new cars ordered in September 1973, the fourth highest month for a year in which the monthly order rate has never dropped below 5,425. The backlog of new cars on order Oct. 1, 1973, was 50,781, of which 47,714 were in commercial builders' shops.

SOUTHERN WILL INVEST $160 MILLION

Southern Railway, which this year is investing a record $160 million in new plant and equipment, is planning another $160-million capital budget for 1974, President W. Graham Claytor, Jr., told security analysts in Atlanta, Ga., Oct. 25. While Southern anticipates a flattening of the economy in 1974, it does not look for a recession and expects freight traffic to remain at relatively high levels.

NW WILL BOOST '74 SPENDING

Norfolk & Western has joined the lengthening parade of railroads that will beef up their capital investments in 1974. President John W. Fishwick told financial analysts in New York that NW's budget for equipment and plant modernization next year will be higher than 1973's $82.4 million, but he did not say how much higher. He did say that there will be particular emphasis on roadway improvements.

MILWAUKEE SETS '74 SPENDING PLANS

Milwaukee Road's 1974 equipment program now adds up to $37.5 million—$32 million for new motive power and freight cars and $5.5 million for continuation of a company-shops locomotive and car rebuild program. Milwaukee will acquire 36 3,000-hp and 10 2,000-hp diesel electric units, representing an investment of $15.8 million. The freight-car program covers acquisition of 779 units, including 300 100-ton covered hopper cars and 196 cars of various types for movement of new automobiles and parts. The rebuild program will involve 18 diesel units and 550 cars.

RAIL BUSINESS BOOSTS PULLMAN

For Pullman Inc., 1973 is indeed shaping up as a good year—with third-quarter earnings up by 89% from the '72 period and with nine-month earnings at a record-high $24.1 million. And the third-quarter showing specifically can be credited primarily to "increased freight car sales and leasing activities." As of Oct. 1, Pullman-Standard had more than 18,500 cars on its production schedule, of which more than 13,000 represented firm backlog. The Trailmobile backlog was at record levels. And Pullman Transport Leasing was reporting sharply increased earnings. Meantime, Pullman Inc. announced a three-for-two stock split (to broaden the market for the stock) and boosted its quarterly cash dividend.

BUDD'S RAIL BACKLOG: $50 MILLION

Budd Co.'s Railway Division now has an order backlog of nearly $50 million that "will keep the division profitable through middle 1975," Budd President Gilbert F. Richards told security analysts in New York Oct. 24. In addition to a $24-million order for 57 Metroliner-type cars for Amtrak (RA, Oct. 29, p. 73), Budd has a $16-million order from Chicago's North and Northwest Suburban Mass Transit Districts for 41 gallery cars to be used on the Milwaukee Road. The Chicago order is scheduled for completion in November 1974. All the new cars will be produced at Budd's Red Lion plant.

EATON WINS "EMERITUS" TITLE AT CHESSIE

An Oct. 5 news release from the Chessie System said: "Hays T. Watkins. . .was elected today chairman and chief executive officer of Chessie System, Inc., and its subsidiary Chesapeake & Ohio Railway Co., of which he had been president and chief executive officer. He succeeds as chairman Cyrus S. Eaton, 89, who remains a director of both companies." There was immediate speculation in the press that Eaton had been forced out of office at a board meeting which he did not attend—and some suggested he would try to win back managerial control. But the family feud appeared to have ended when a second news release came out of Chessie Oct. 26. It said: "Cyrus S. Eaton was elected today chairman emeritus of Chessie System, Inc., and its principal subsidiary, the Chesapeake & Ohio Railway Co., at meetings of the boards of directors of both companies." The release added that the directors were "pleased to confer this title on Mr. Eaton in recognition of the 19 years he served as chairman" and that "this unanimous action would have been taken at the Oct. 5 meeting if Mr. Eaton had found it possible to attend." The new president of both companies, as a result of action taken Oct. 5, is John W. Hanifin, formerly executive vice president.

(Continued on page 64)

Announcing the new Garrett IE831-800 industrial gas turbine engine

It's built and backed with design ideas proved in a decade of operating experience.

The newest development in our line of industrial prime movers, Garrett's IE831-800 Gas Turbine gives you all the advancements modern technology can offer, plus all the advantages 10 years of operating experience can provide.

Versatility—The IE831-800 has the compact size, low weight and minimum vibration characteristics to meet a variety of applications. To name a few: emergency standby power, continuous electrical generator sets, oil well drilling, pumping stations, total energy systems, railcar propulsion, refrigeration, gas and air compressors, process plants, and marine auxiliary power.

Performance—Design experience means simplicity, ruggedness, easy maintenance and economical power, too. The IE831-800 delivers 690 shaft horsepower (continuous, at 59°F. at sea level).

Dependability—Garrett industrial turbine users commonly experience 20,000 hours prior to overhaul, with high-time units reaching 45,000 hours. Because the IE831-800 is based on proven design, it is expected to exceed this demonstrated capability.

Send today for complete specifications—For complete details, phone (602) 267-4314, or write: Manager, Engine Sales, Garrett Industrial Engines and Products, 402 S. 36th Street, Phoenix, Arizona 85034.

GARRETT

One of the Signal Companies

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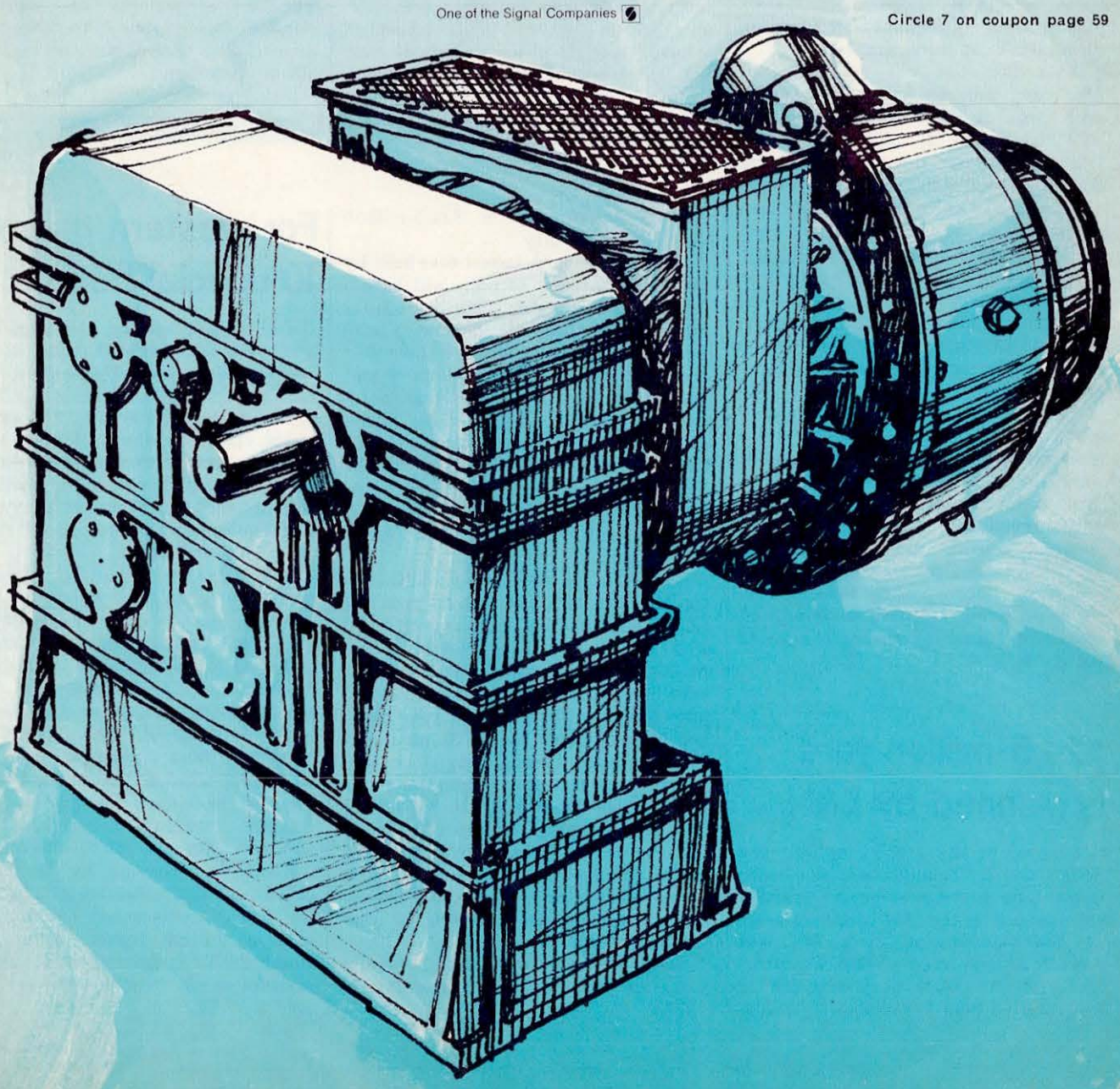


Checking on L&D—while it happens

Destination inspections are great for determining what kind of damage to lading may have taken place in transit, and sometimes such inspections can give clues to the causes of damage. But destination inspections are admittedly after-the-fact—and now Burlington Northern is trying to get a handle on what's happening inside a car, while it's happening. How? By installing lights and a television camera in a car, coupling BN's theater car to the freight car, hooking up the cables and then watching a tv monitor while the train is in motion. A permanent record can be made with use of a videotape recorder; voice-over can be added as the camera runs in order to pinpoint train location, speed, track condition and so forth.

BN's first test was on a load of linerboard moving from Hoerner-Waldorf Corp. at Schilling, Mont., to the ACF laboratory at St. Charles, Mo. What the televised test run showed was that linerboard rolls, stacked two high, were relatively stable from the door area to the ends of the car—but rolls between the door posts rotated, with the top rolls rotating counter to the bottom rolls. Now, ACF is providing additional car instrumentation, which includes installation of strain gauges, load cells, a dynamometer and three-way impact recorders.

Several other paper companies have indicated interest in the tests, and a major brewery also plans to make a test shipment soon. As for BN, it's enthusiastic about the project: "We can not only observe but also document over-the-road activity to determine what happens in a box car," says R.E. Taylor, assistant vice president-mechanical. "This project could have an important impact on future car loading and design standards."

French turbos: The first month

Just as Amtrak's pair of Chicago/St. Louis French RTG turbine trains were starting to play to full houses, some unfortunate things happened on the way to St. Louis. A grade crossing collision 80 miles southwest of Chicago resulted in slid flat wheels on the entire passenger train, along with superficial damage to the front of the leading car. Amtrak was forced to press into service a conventional train while the wheel work was being performed on the one RTG. Three days earlier, a northbound turbo suffered superficial damage when it sideswiped a parked truck.

All this occurred just as the new turbine trains were getting a firm hold on the Chicago-St. Louis passenger market. Amtrak officials concede that the first week of operation saw trains running about 20 minutes late on the average. In the days immediately prior to the crossing accident, however, the trains were running on time and patronage on the morning train out of Chicago had doubled, while the evening train was experiencing a tripling of patronage. In Chicago, departing trains were loading to capacity—296 passengers—and stations along the line were advising prospective passengers that "standing room only" was available. Yet, passengers continued to board at these stations. Amtrak officials say that it's really too early to tell what kinds of passenger trends are developing, but schedule adjustments are definitely planned for sometime in the near future to take advantage of the turbine train's obvious popularity.

$24.5-million yard is planned by L&N

It adds up to about $54.5 million—the dollars which "Family Lines" Seaboard Coast Line and Louisville & Nashville will spend over the next couple of years on new classification yards. SCL will put $30 million into a yard at Waycross, Ga., and now L&N has announced its long-awaited plan for Louisville, involving construction of a $24.5-million classification facility.

L&N's new yard, largest ever built by the road in terms of cost, will have a 48-track class yard with throughput capability of 3,000 cars per day. Classification will be computer-controlled and, like every yard built in recent years, this one will probably bring automated operation to just a bit higher degree of sophistication than the one that went before. The facility will be built—with ground-breaking scheduled for next spring—adjacent to the L&N mainline south of the present Strawberry Yard.

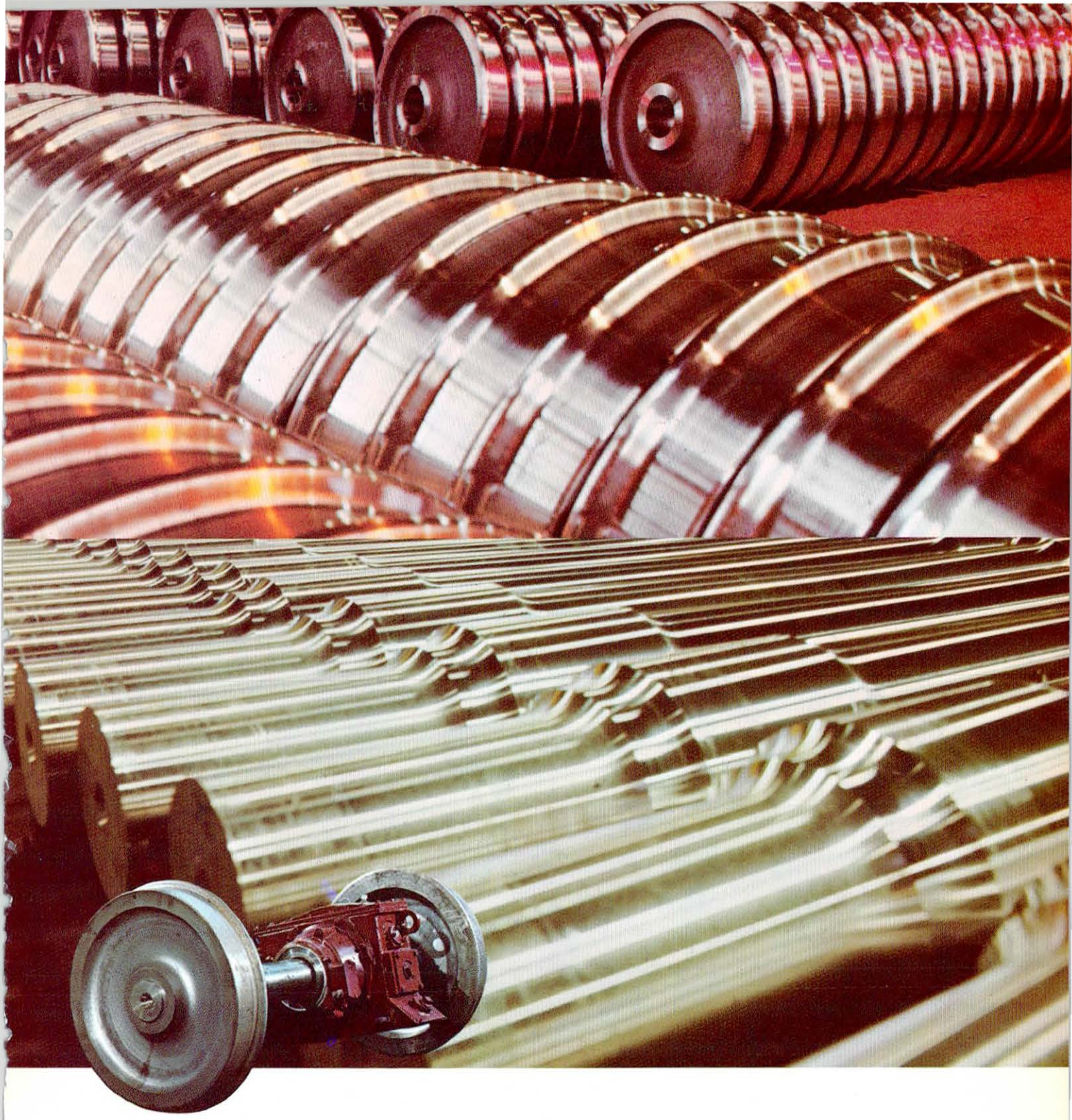
Louisville is the largest industrial-traffic center on L&N, with six principal L&N lines radiating from the city and with interchange there with six other roads. The new yard is expected to expedite handling of both online and interchange traffic and to improve handling of equipment through South Louisville company shops, largest repair/maintenance facility on the system. As L&N people describe it, the yard "will take full advantage of the efficiencies that can be accomplished by augmented use of computers. . .The memory bank of the computer will contain precise information on the location of cars throughout the system. . ."

Both the Waycross and Louisville yards are planned for full operation in 1976.

For western grains, 10 special trains

Union Pacific will be throwing something new into the next corn, milo and soybean harvest: 10 special grain trains, each made up of a 50-car set of 5,250-cubic-foot-capacity covered hopper cars. In the operation which UP is planning—with the trains working between the grain regions and ports in the Northwest and on the Gulf Coast—it's expected that equipment will get about double the normal utilization.

UP President John C. Kenefick points out that the special trains will operate primarily from single elevators or from combinations of elevators where there's a capability of loading a 50-car train in 48 hours or less. These special trains, it's estimated, will be using only about 4% of UP's total hopper-car fleet. Operation of the trains will make possible the release of other cars for customers loading in smaller volumes. And, says Kenefick, the plan will also have the effect of expanding the car fleet for use by all shippers because of the increased car utilization which will be obtained: "We're moving into a critical harvest period, and Union Pacific is determined to take any measure it can to relieve the car shortage."



THE STANDARD OF QUALITY— FORGED STEEL WHEELS, AXLES AND ASSEMBLIES BY STANDARD

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PETERSBURG, VIRGINIA

Circle 9 on coupon page 59

Watching Washington

SUBSIDY SENTIMENT GROWS

R.M.M. McCONNELL

While most of the Washington-watching being done by the railroad industry lately has focused on the progress of the Shoup-Adams effort to solve the Northeast rail crisis, debate over what happens in the Northeast Corridor has sparked some other railroad-related Congressional suggestions. Among them are new calls for government subsidies to the railroads, as well as insistence on more spending-for-safety by Uncle Sam.

Some examples:

—Pennsylvania Republican Congressman Lawrence G. Williams has urged outright subsidies for railroads to balance government money used directly or indirectly to subsidize other transportation modes. Williams pointed out that the Federal government has "granted huge subsidies to air transportation by paying billions of dollars for the development of new military aircraft then converted to civilian use." By the same token, he added, government subsidies have provided massive aid to the highway transportation industry. And all of this has been going on while the railroads have been laboring under an inefficient and lopsided regulatory structure.

—Another Republican—Indiana Rep. William Hudnut—has urged Federal spending to patch up railroad roadbeds. Pointing out that the railroads are in no shape to finance major track and roadbed modernization, Hudnut emphasized that they can't even borrow rehabilitation money because "property now owned by most railroads is mortgaged to the hilt." Hudnut said the interests of a balanced transportation system, a solution to the energy crisis, and improved railroad safety all demand that the government foot part of the bill for track upgrading.

—Concern over rail safety has also led four Senators, again all Republicans, to push the Department of Transportation to hire more railroad safety inspectors. Sens. Clifford P. Case of New Jersey, Ted Stevens of Alaska, Charles Mathias of Maryland, and Richard Schweiker of Pennsylvania wrote DOT Secretary Claude S. Brinegar to point out that the DOT appropriations bill for 1974 authorizes more than $3 million for hiring 95 additional inspectors, money DOT has not yet allocated.

Meanwhile, DOT is getting ready to submit its own proposal to Congress for up to $2 billion in Federal loan guarantees to help step up railroad modernization. The big difference between this proposal and a similar one which the Administration sponsored a year ago is that the money could be used not only to purchase new rolling stock, but also to improve the fixed plant.

ALASKA RAILROAD: UP FOR GRABS?

Press reports that a group of potential purchasers have offered the government $100 million for the Alaska Railroad do not indicate that the line is up for sale, according to the Federal Railroad Administration. In the first place, FRA spokesmen point out, no one is authorized to sell the railroad; and in the second place, no one really knows what it is worth. Both of these statements are true, but only temporarily. Work is now going on to draft legislation authorizing sale of the railroad, and a total inventory of the line is under way to determine a fair market value.

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Lines on Labor

GUS WELTY

STRIKE? FORGET IT

There is some question whether anybody in the labor movement listens much anymore to such people as AFL-CIO President George Meany or Labor Secretary Peter J. Brennan, who came out of the building trades. But somebody ought to be listening, because what they've been saying makes a pretty fair amount of sense. What they've been saying is that a strike is not the best way of getting something settled between management and organized labor.

LOOK BACK, LOOK AHEAD—AND WONDER

Nick Poulos, financial editor of the Chicago Tribune, quotes George Meany this way: "Now we are paying the penalty of success, and the penalty of success is that when you get a strike you've got a helluva lot to lose. You take a guy getting $10,000 a year, he's trying to send a kid to college, maybe two kids. And maybe he's got a second-hand car for his wife, in addition to a car for himself. And maybe he's trying to pay off on a little home. Well, you put him on strike and you've got a helluva lot greater problem than you had 25 years ago when you put him on strike when he was getting 80 cents an hour. In the final analysis, no matter how long the strikes go on, they always get settled—and they always get settled around the table. I'm not talking about giving up the right to strike, but it would seem to me that it would make sense to find an alternative." (That quote reprinted, courtesy of the Trib.) Secretary Brennan talks of the strike as outmoded, calling attention to its impact and to employees' changing economic status: "A growing number of workers are moving into the middle class, with all that means in terms of lifestyle, outlook, attitudes."

IS ANYBODY LISTENING? A LOT OF PEOPLE SHOULD BE

Even if you accept the fact that Meany is an actuarial hazard and that Brennan is the White House token bricklayer, that doesn't mean that what they're saying is wrong. It's right. Strikes *are* outmoded, strikes *do* cost both sides more than they're worth, reasonable men *can* find other ways of settling disputes. Steel is one example (RA, Oct. 29, p. 17). It has yet to be proved that the no-strike/arbitration agreement worked out by Big Steel and the United Steelworkers will work. But, they're trying. Railroads *could* be another example, because reasonable men are also working mightily to keep lines of communication open between management and the organizations. The rail industry has nothing so formal as the steel agreement to go on, but there is hope that next year will see peaceful settlement—partly because the industry is in economic trouble, but in good part because the bargainers involved know each other better, understand each other better, respect each other more.

A lot of the people who used to fight it out at the bargaining table in the railroad industry probably wouldn't understand what's going on today—wouldn't understand what Al Chesser and Bill Dempsey and Lou Menk and Les Dennis and a lot of other top people on both sides are trying to do. Maybe that says something about the reasons the industry has had a "labor" problem. But, never mind the past. In so many ways, it's a new ballgame now. But isn't it ironic that, in '73, geriatric George Meany plugs the "new" game?

How a telephone conference system helps keep track of a railroad.

Every morning at 8 o'clock, the Erie Lackawanna senior vice president-operations and eight division heads in eight cities hold a conference. By phone.

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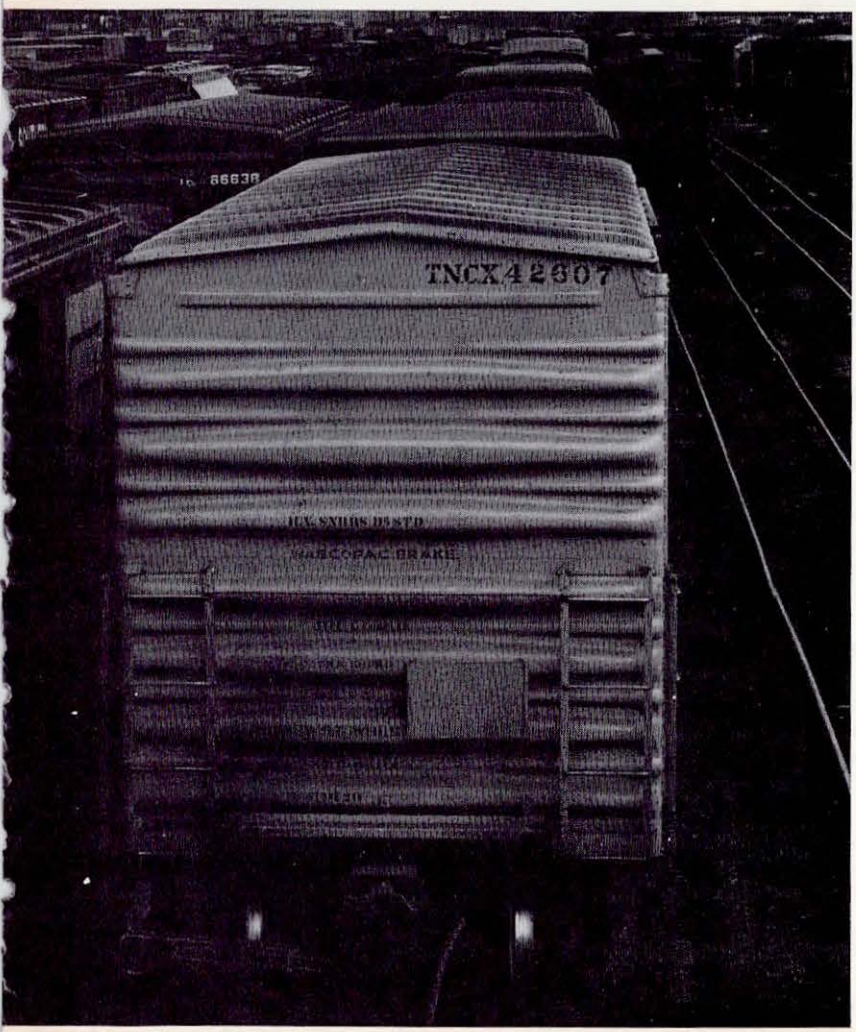

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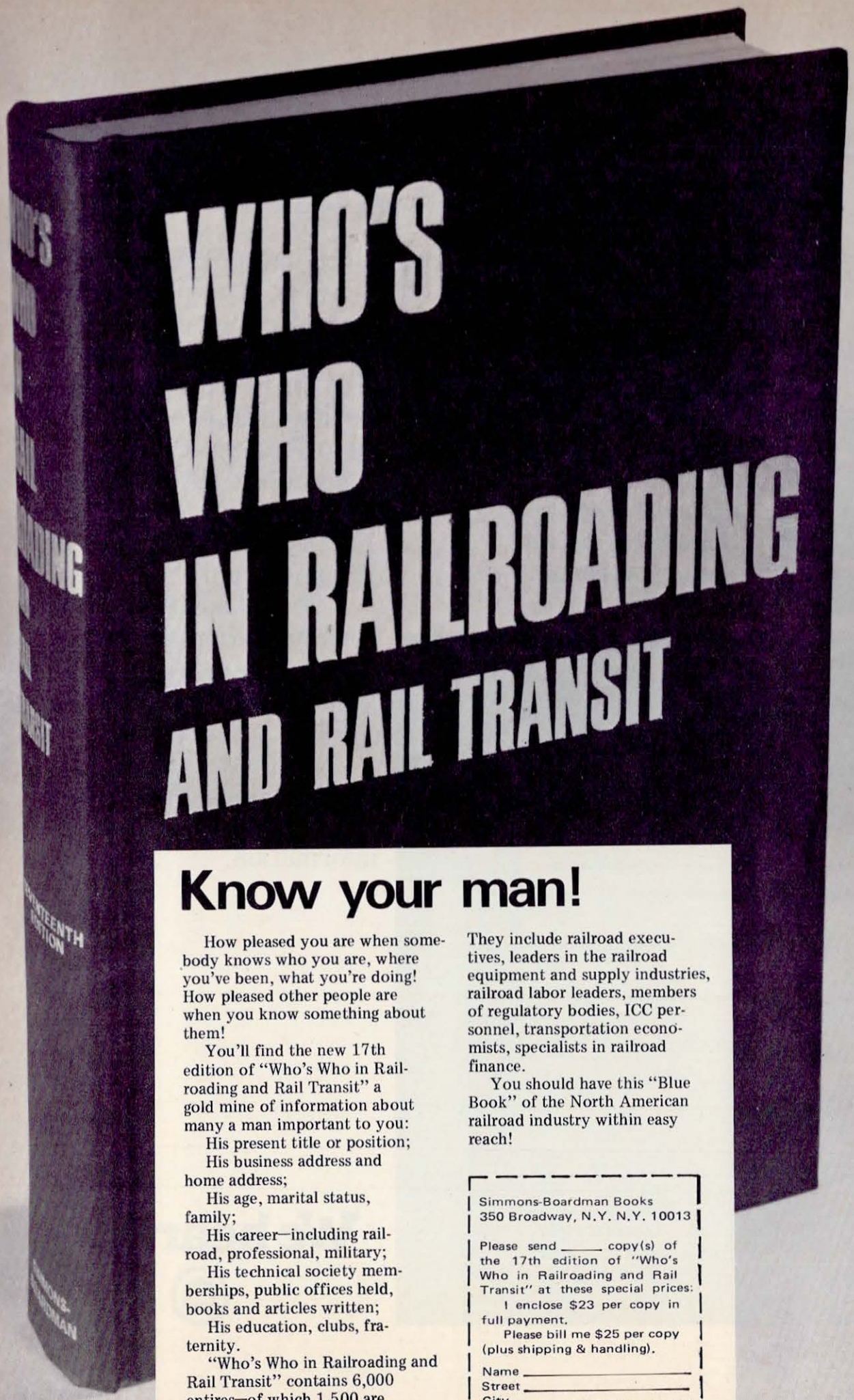

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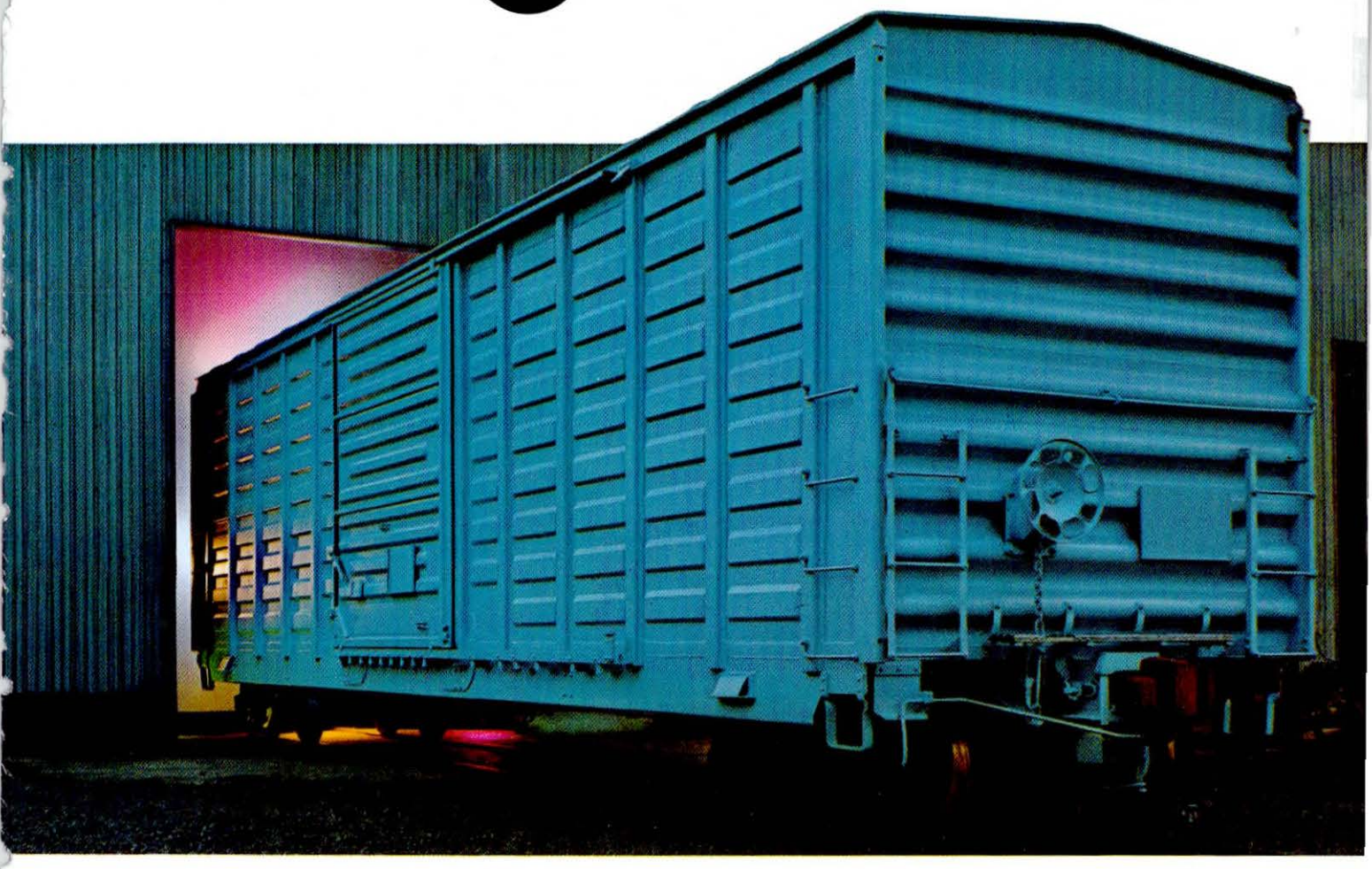

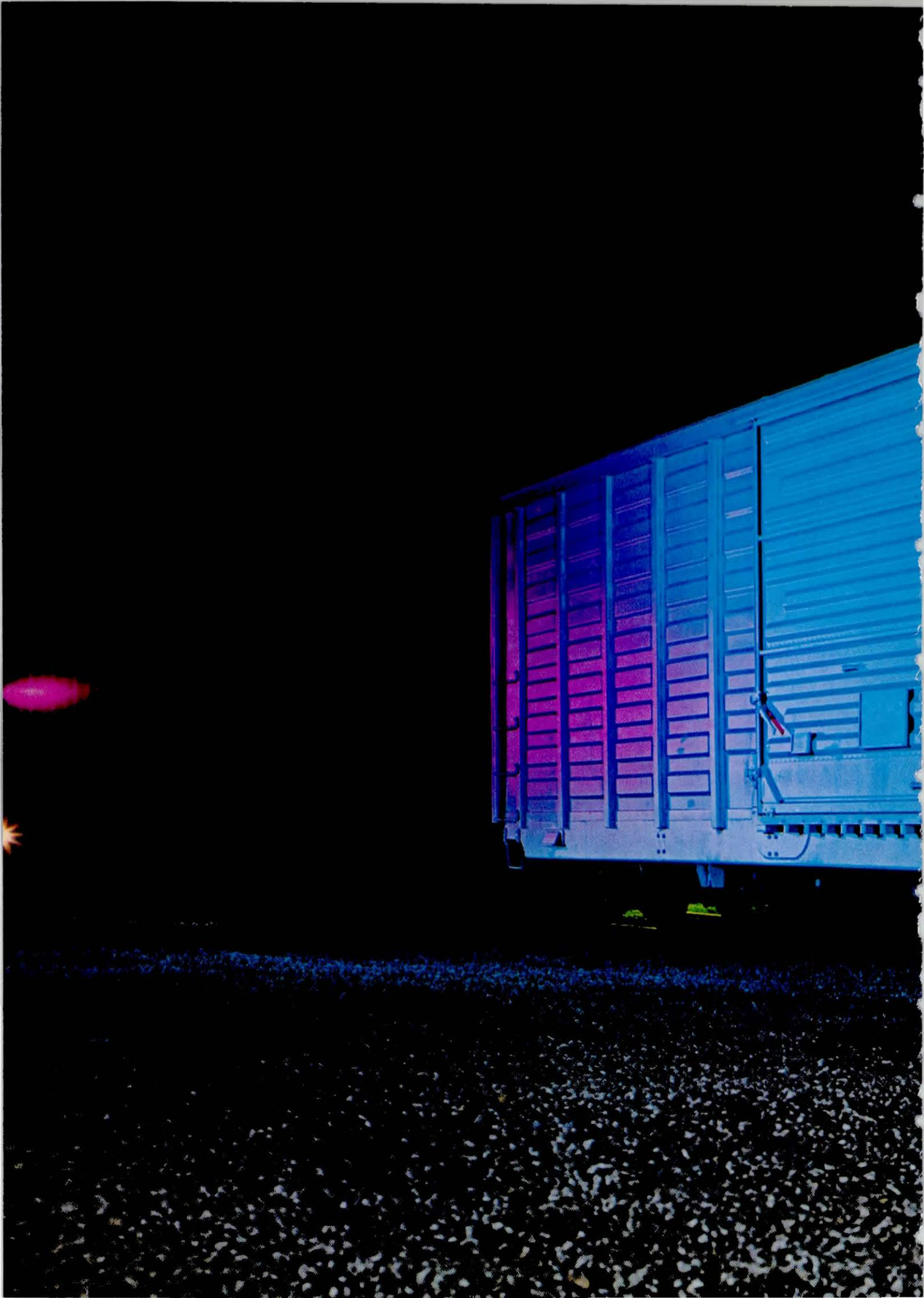

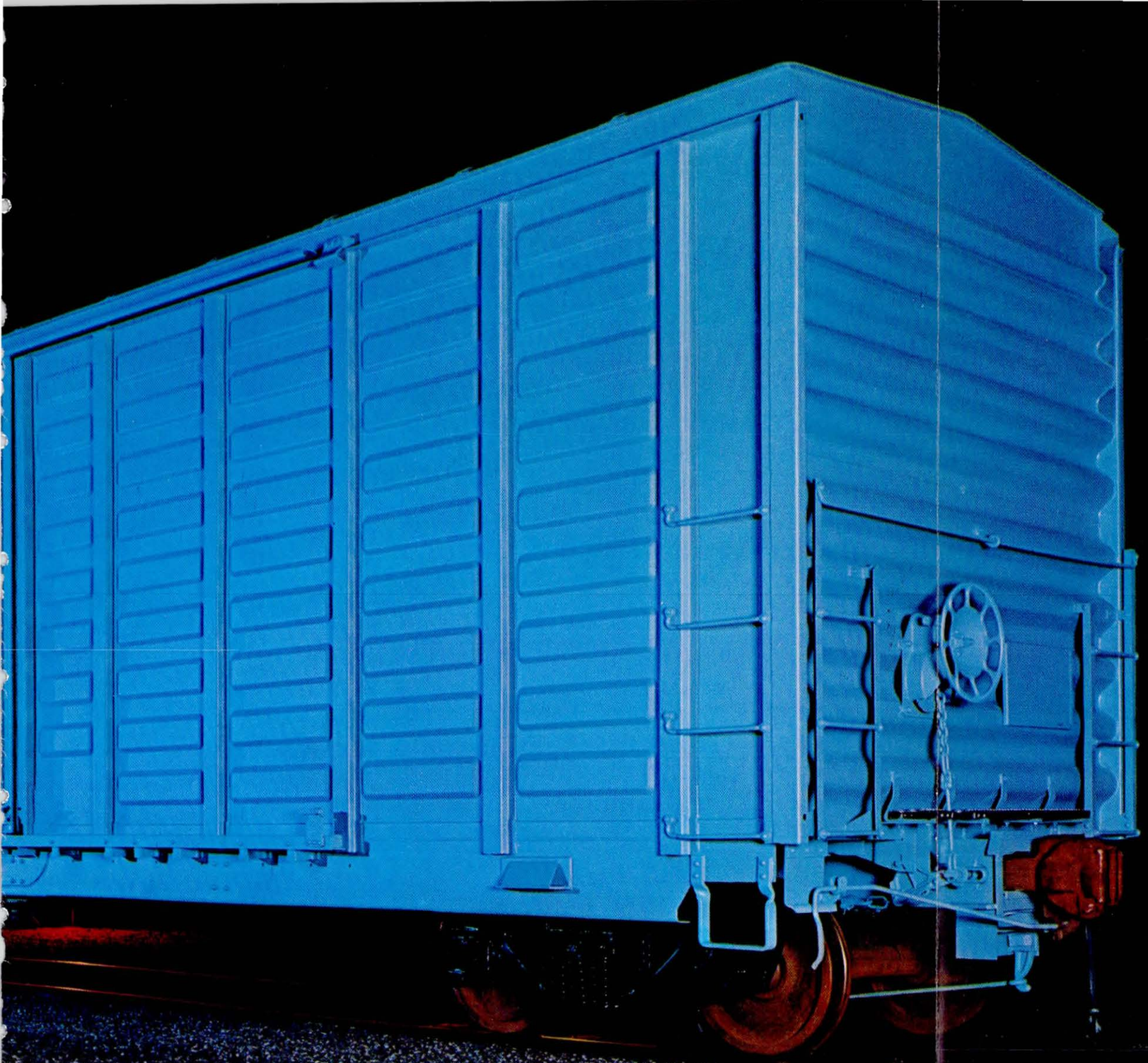

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Pullman-Standard

13 ways new. 13 ways better.

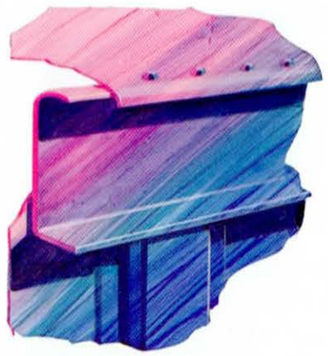
The new Pullman-Standard box car is not just an improved box car, it's a new box car with 13 major new features throughout. Features that add new strength in their respective areas. Features that together contribute to a completely new milestone in strength and quality.

New side sill and reinforcement. It's a new side sill. A 6″ x 3½″ x 5/16″ thick rolled angle. The new side sill reinforcement is a 15″ deep angle 5/16″ thick, and extends from end sill to end sill. In addition, the new wider side posts extend well below the side sill and onto the side sill reinforcement itself, giving increased lateral strength to the side.

This carefully engineered new design has resulted in a much stronger box car side construction.

New side posts. The box car side is the major structural and longitudinal load-carrying member, and the new Pullman-Standard box car employs a totally re-engineered side, including new, wider, deeper hat-section side posts.

Two inches wider than former posts, the new posts are also 137% stronger. As a result, the new side requires only ten side posts, instead of twelve.

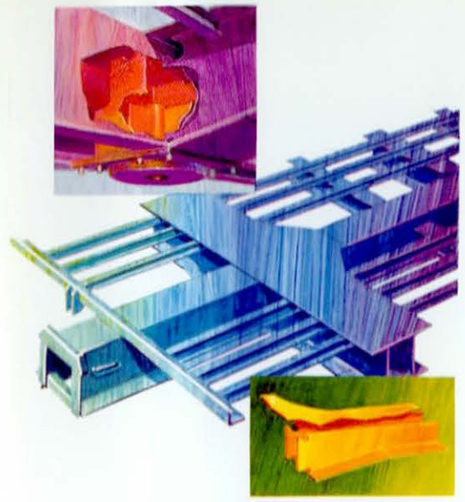


New side plate. Until now, the "ZU" side plate has been the standard of the industry for outside post box cars. The design advantage was that it permitted riveting the roof outside the cargo area.

The new Pullman-Standard side plate is a roll-formed "C" section which provides the same riveting advantage. It is 5/16″ thick high strength steel and is 21% stronger without reinforcement than the old "ZU" side plate with reinforcement. The new design also eliminates the need for reinforcement in on-center doorway areas up to 16′ wide and 10′4″ high, allowing the side plate to be uninterrupted for its entire length.

New corner post and end construction. The completely redesigned corner post is now a ¼″ thick "J" section pressing combined with a 3″ x 3″ x ¼″ thick angle to form a rugged box section. The new design is of high strength steel and 273% stronger than the old design!

To take full advantage of this new strength, engineers selected a two-piece, seam-welded end as standard. Stronger than the old design, the top sheet is 3/16″ thick open hearth steel, and the bottom sheet is ¼″ thick steel of the same type. Corrugations are a full four inches deep for their entire width and continuously welded to the box-section corner post and steel angle end sill, to take optimum advantage of the new strength.



New underframe. The underframe of the new Pullman-Standard box car has been significantly redesigned. The structurally excellent qualities of the cross-bearer have been retained in a new single contour design that permits construction efficiencies, including the more efficient installation of nailable steel flooring. Stringers are now in line, providing more even floor support over the length of the car, with inboard and outboard 4″ stringers being uninterrupted sections from bolster to bolster, increasing strength and load-carrying capacity.

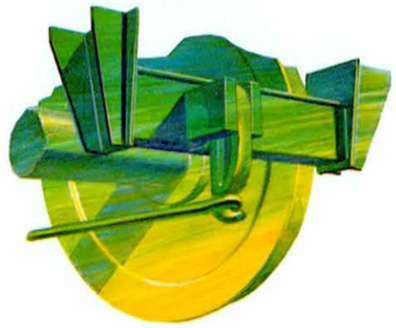
The new profile bolster web smoothly transfers stresses from the center sill to the truck side frame, reducing stress concentrations.

The center filler is of a new welded design, providing greatly improved strength. The center filler assembly installation is carefully controlled for levelness before welding, to assure close tolerance contact with the center plates.

The bolster bottom cover plate is universal mill edged, avoiding the stress concentrations of shear-cutting which contribute to low temperature brittle fractures.

New forged front draft lugs. Fabricated draft lugs of welded steel have been replaced by key slot liners and front draft lugs of forged steel. This design takes optimum advantage of metal strength, producing a continuous "grain flow" to follow the shape of the part, and resulting in greatly increased strength.

New brake arrangement. Among the new safety devices and lading protection features is the adoption of Pullman-Standard's under-the-axle hook-and-eye arrangement. This design is more efficient, provides for a safer brake rod and lever application, and helps eliminate binding between rod and levers when the car is negotiating a curve.



New door post. Because of high abuse factors from lift trucks, the open hearth steel door post has been replaced. The new door post is stiffer, made of high strength, low alloy steel, and is 92% stronger.

More dramatic differences. These include a versatile base interior design which can be easily adapted to a variety of lading restraint devices, new wider sill steps, improved grabs for greater safety, and new, easily accessible, external jacking pads.

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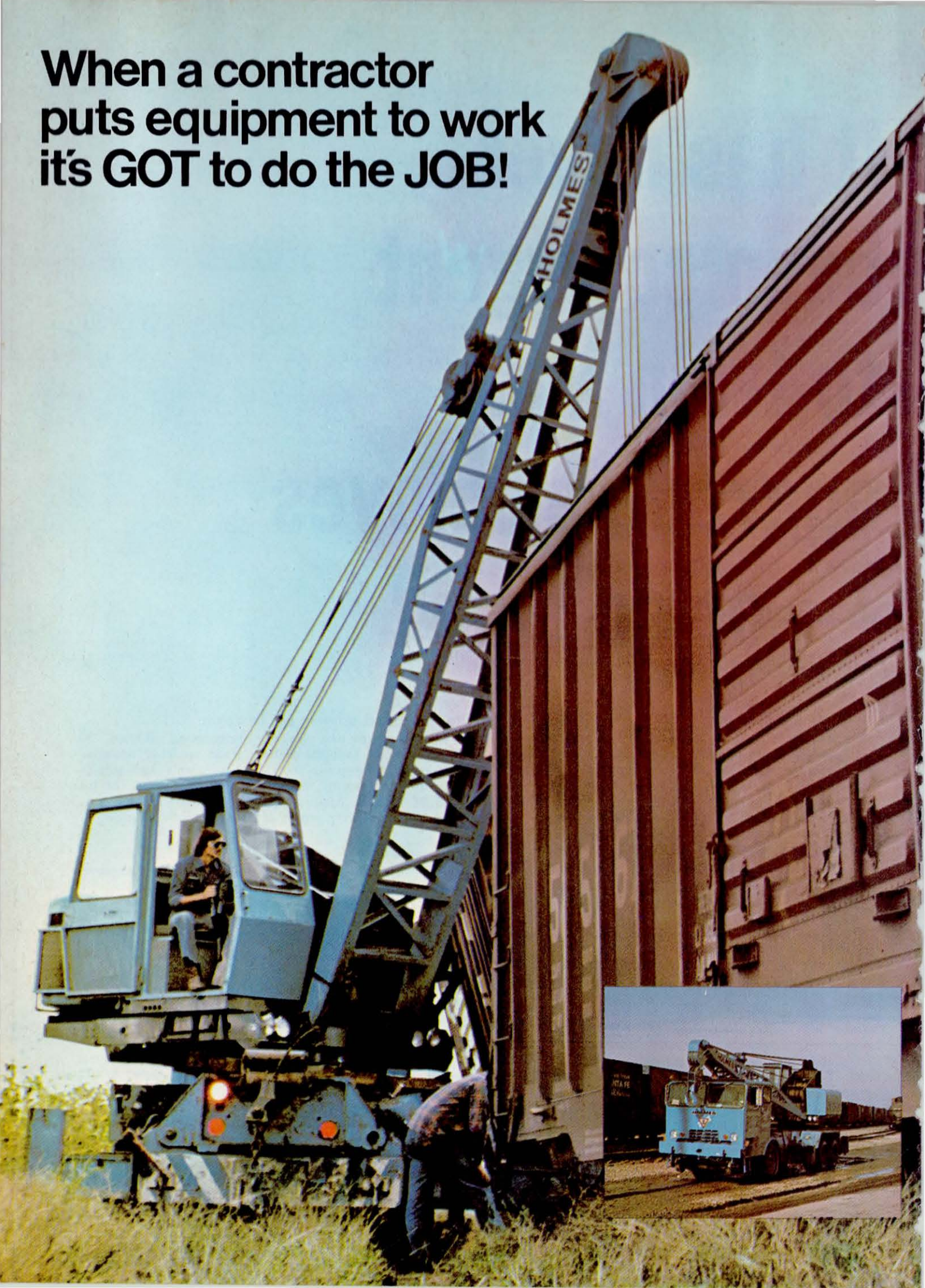

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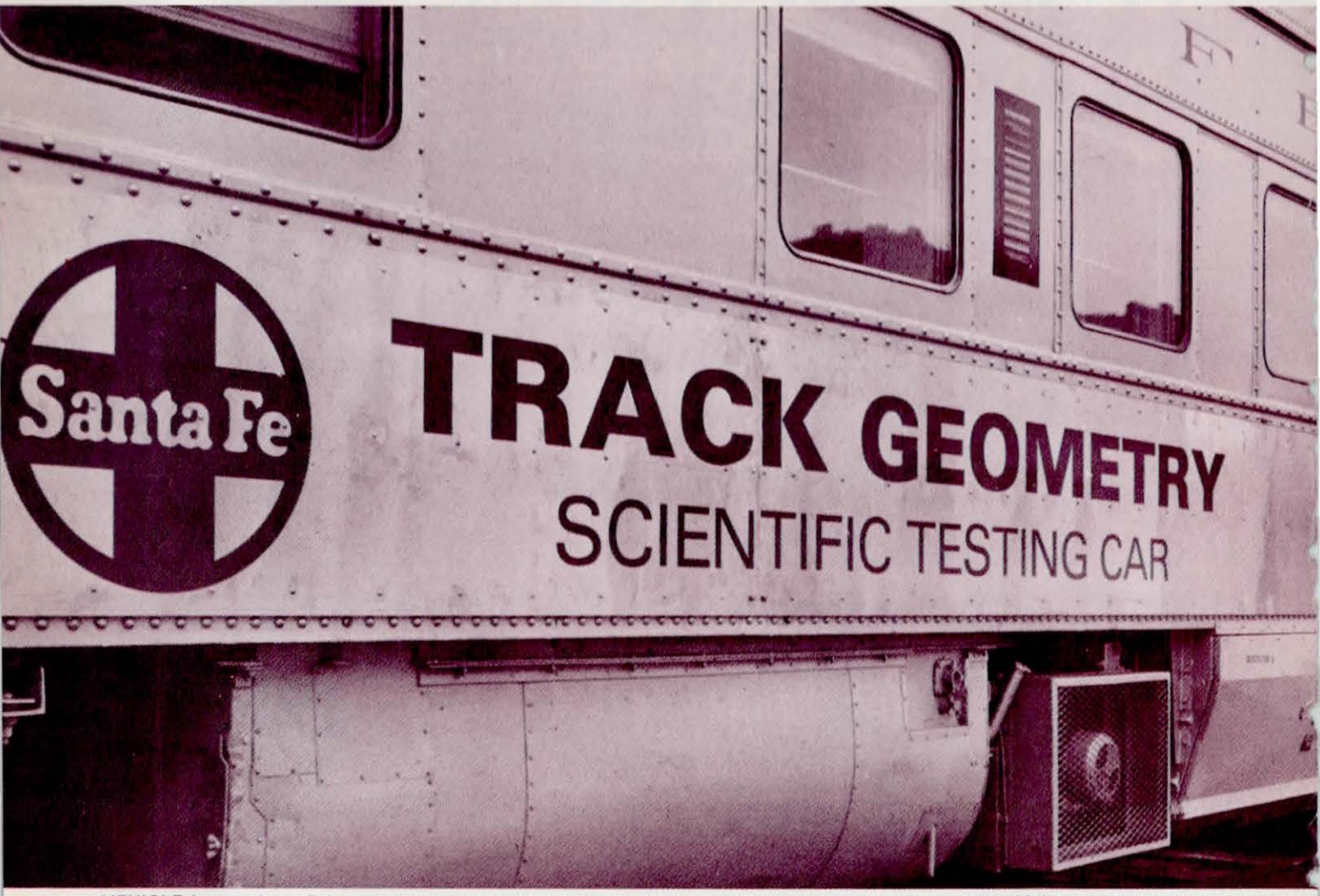
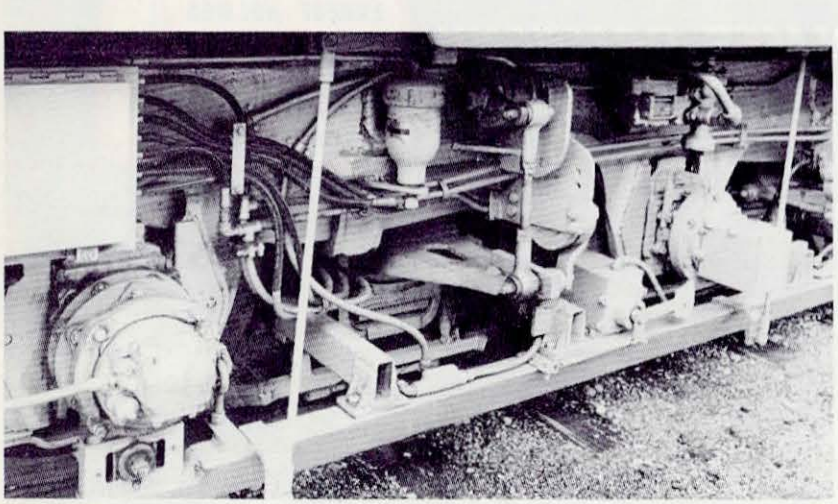
Santa Fe's new track geometry car:



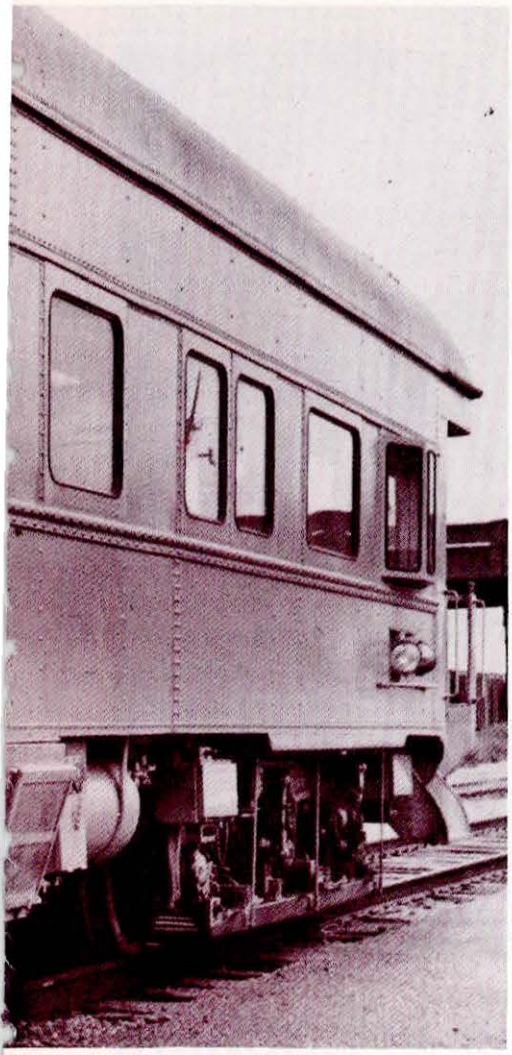
VEHICLE for the Santa Fe's track-measuring car is a modified business car. Since the unit as modified weighs 220,000 lb the measurements are made



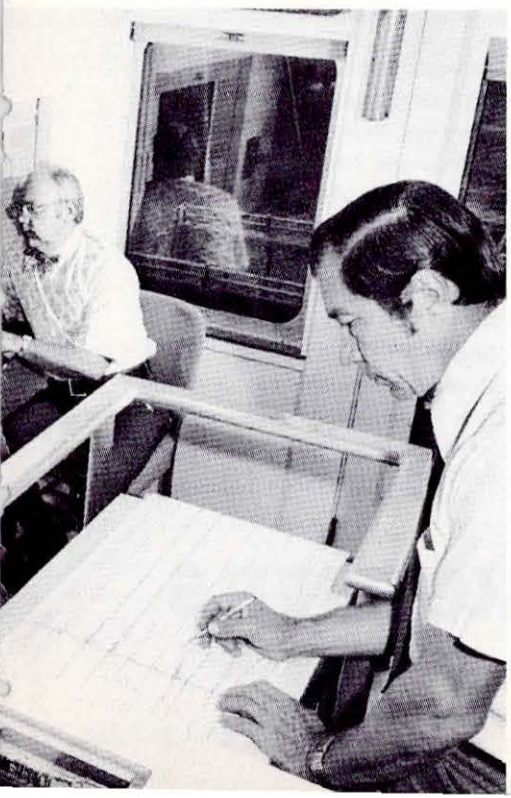
CONTACT FEELERS are used to take track measurements but the data are converted by optical encoders into electrical voltages which are used to produce analog traces of the measurements and to feed the data to magnetic tape and an onboard computer.

THREE-MAN CREW serves as permanent staff of Track Geometry Car 85. Local M/W officers will also ride the car to monitor the results while vehicle is on their districts. Man at bay window in rear has pushbutton device for recording mileposts, distances and landmarks such as bridges, turnouts and crossings.

"One notch ahead of all the others"



ith the track in a dynamically loaded state.



By MERWIN H. DICK,
Engineering Editor

Can it be that the swiftly developing technology of track-measuring cars is on the verge of shaping a new and surprising role for such cars?

Developments on the Santa Fe point strongly in this direction. The road's new track-inspection car—Track Geometry Car 85 is its official designation—is basically a highly sophisticated package of electronic gear and other technology for capturing and processing track measurements for the use of management and track engineers in planning track-maintenance work. Potentially, however, the data provided by the car are visualized by its designers as having uses in other areas too, such, for example, as fashioning guidelines for freight-car design and ride-quality performance.

But for the time being, Track Geometry Car 85 will be riding Santa Fe rails, at speeds up to 80 mph, primarily for the purpose of fulfilling the conventional role of track-measuring cars. In so doing it is making use of the latest—perhaps the most advanced—technology to be incorporated to date in any car of this type.

Actually, as indicated in the accompanying box, only a handful of railroads own such cars. Although one or two lines have had them in use for many years, it is only in very recent times that the designs have begun to reflect the most recent scientific advances in data collection, transmission, processing and reproduction. The Santa Fe car bristles with these advances, even including applications of space-age technology.

"Our car is at least one notch ahead of all the others," Santa Fe President John S. Reed proudly told a meeting of security analysts in New York in mid-October, adding: "We think it will lead to more efficient and cheaper maintenance. And anything we can do along this line is especially important today in view of the new FRA track standards."

● **Behind the decision.** It was the demands made on the track by increasing traffic loads and the need to get the most effective use out of the maintenance dollar that led Santa Fe management to the decision to build an automated track inspection car. Santa Fe was thus lining itself up with the still small but growing band of railroads on which the conviction has taken root that track-measuring cars are a useful—perhaps necessary—tool for effective track management under today's conditions. (On the other hand, and at the opposite extreme, is the school of thought whose position is expressed in the familiar statement: "We know where the bad places are, just give us the money to fix 'em.")

In preparation for designing their car, Santa Fe people were out looking at the cars, and the programs built around them, operated by other railroads. From these inspections it was concluded that the track inspection vehicle must first be a maintenance tool and that the measuring equipment must be capable of day-to-day operation at any train speed which might be encountered on the railroad, with a minimum of maintenance and recalibration.

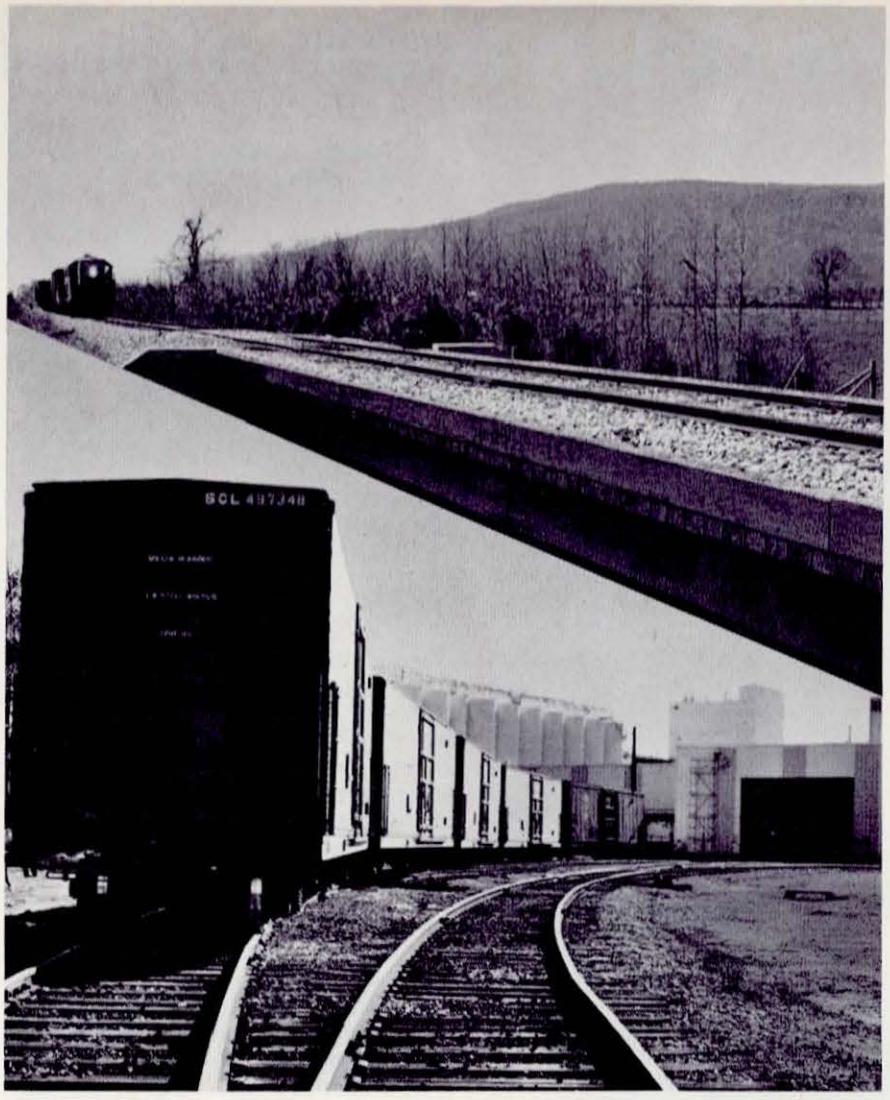
One of the first decisions was to utilize a business car, modified as necessary, as the track-measuring vehicle. With this vehicle, weighing 220,000 pounds as modified and equipped for the track-measuring function, the track data are taken with the track in a dynamically loaded state, a condition that is considered of the highest importance by Santa Fe people.

● **What it measures.** Track measurements made by the car include all the usual parameters—warp, surface of both rails, gauge, superelevation, alignment of both rails—plus two values—lateral and vertical acceleration—which are not normally measured by such cars. Measurements are based on a fixed chord measuring frame highlighted by a fully retractable sensor system. Truck-mounted optical encoders perform each measurement, providing an electrical output to the recording and processing equipment inside the car. Santa Fe spokesmen point out that a high degree of accuracy is assured by the fact that the voltages generated are infinite in number.

The voltages or impulses are divided at a master terminal into two parallel sets, one of which is used to produce the traces on an analog strip chart while the other feeds data to an onboard computer. The analog chart is cited by Santa Fe as an example of the advanced technology utilized in the design of their car. The electrostatic principle is used in producing the strip chart, which eliminates the usual arrangement of pens for making the traces. Blank paper is used and the recorder produces on it all the necessary collaboration and tolerance lines in addition to the traces.

The recorder has a capability of 14 channels. In addition to the nine parameters measured, the chart indicates mileposts, distances and key landmarks such as bridges, turnouts and crossings. A feature is that the chart produces a fixed amount of paper per mile of track measured regardless of the speed of the car. Two spare channels are held vacant

From laminated wood bridge stringers... to industrial track ties...



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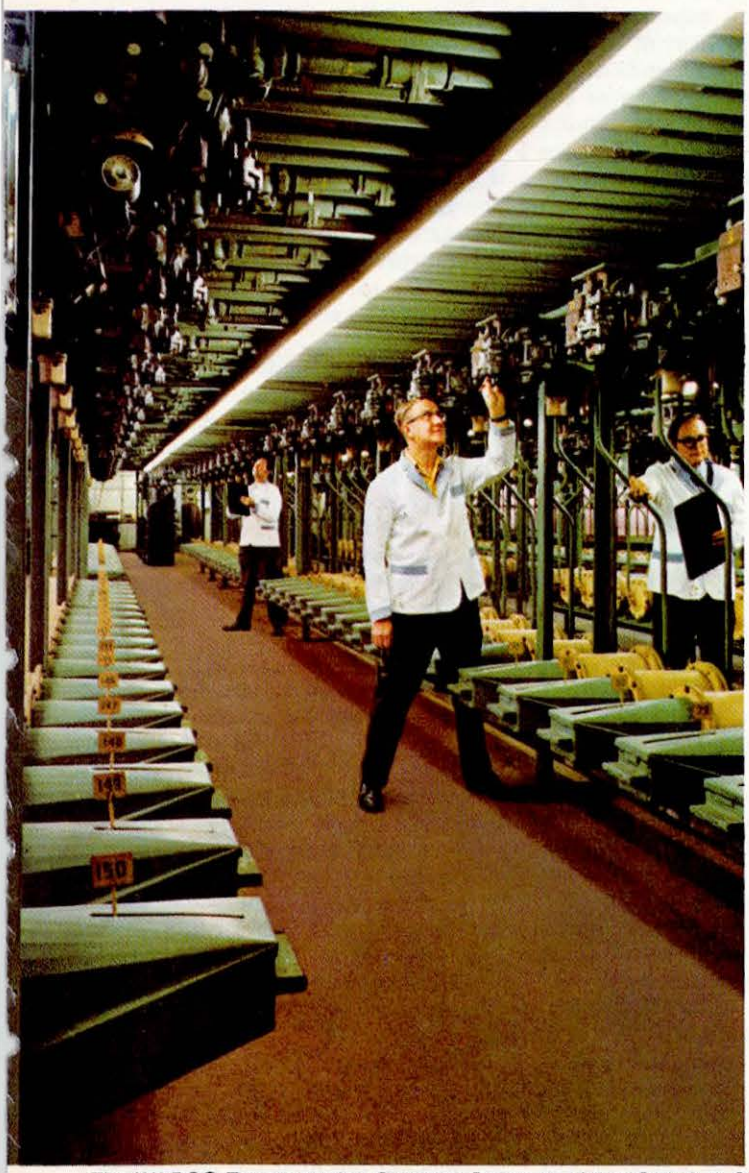

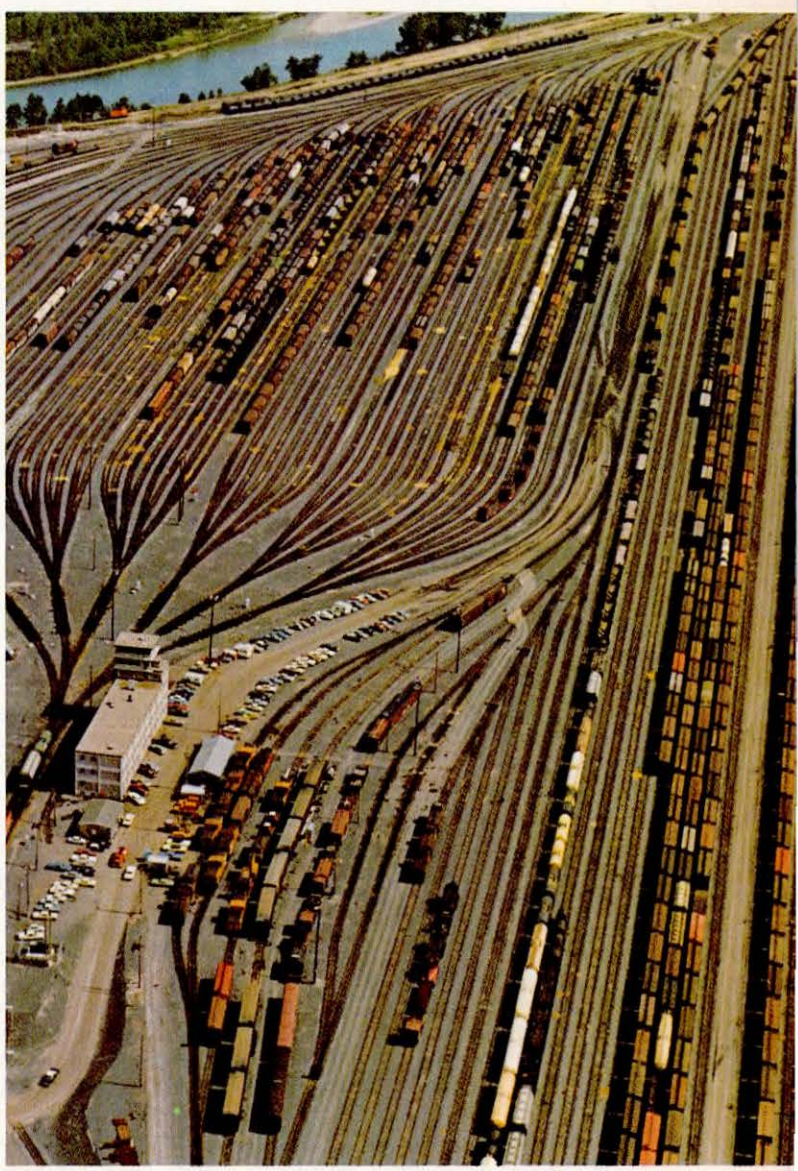

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Circle 12 on coupon page 59

for use in expanding measurement capabilities in the future.

Like many other features of the inspection car, the recorder mechanism utilizes space-age technology which has been custom modified for this particular application. C.R. Kaelin, Santa Fe's director of technical research and development, points out some advantages of the recording system used. Included are clarity and permanence of the traces, low cost of operation, and simplicity of operation and calibration.

● **Capabilities of on-board computer.** The onboard computer is described by Kaelin as a mini-computer custom-made for the particular operation. It is a Data General Nova Series unit with a fixed-head disc for storage and a magnetic tape transport for off-car processing. Onboard printouts are produced by a line printer with a capacity of 500 characters per second. Computer system and program control is accomplished by a Teletype machine.

The printouts produced on the car are primarily those that are immediately useful to the local maintenance people—division engineers and roadmasters who will accompany the car over their respective districts. The printouts will list so-called priority locations which require prompt attention, emergency locations which in addition to requiring immediate attention are protected by slow orders, together with one-mile summaries of each type of defect—called anomalies in the scientific parlance—and an over-all rating index for each mile. The milepost location of each priority or emergency location will be indicated to the nearest foot. A condensed tabulation of the track conditions on his territory will be given each roadmaster as he leaves the car. Each data channel will be monitored by the computer at a sample rate corresponding to an 11-inch spacing in the track.

● **Local use of output.** As he monitors the printouts on the car and the strip chart, the roadmaster will be prepared to advise the local maintenance forces immediately of any priority or emergency locations. The intention, says W.S. Autrey, chief engineer-system, is to provide each roadmaster with a spot tamper, probably equipped with a lining attachment, which will be available, along with other equipment, for use in correcting the anomalies turned up by the car.

When the printouts indicate that a section of track has an unsatisfactory rating, the roadmaster will make an on-the-ground inspection to determine what needs to be done to restore the track to a satisfactory condition, explains Autrey. The index ratings and the on-the-ground inspections will be used as a guide, adds Autrey, in determining which territories need attention and to justify the expenditures required in performing the work.

Magnetic tapes accumulated during the operation of the car will be sent to the road's computer center for off-car processing. This processing will include all anomalies above a selected minimum value. The output from these tapes will be used initially to establish a system master track file or data bank. Uses to be made of this data, explains Kaelin, will include track degradation studies over a period of time and studies intended to develop the correlation between traffic, speed and rate of track degradation.

● **Future possibilities.** Further in the future, perhaps in 1974, are plans to pass data from the bank through a computer which has been programmed to calculate the dynamic response of a given vehicle to the track being mea-

(Continued on page 34)

How other roads use track cars

With its track-measuring car, Santa Fe becomes—so far as is known—only the sixth railroad in North America to own cars that measure all, or nearly all, track parameters (and that includes a metropolitan rapid transit system). It is understood that a seventh line, Burlington Northern, will soon join the ranks of this group. A track-measuring car is reportedly now being built for the BN. Also, BART is known to be developing a car which will use laser beams in measuring the parameters.

Roads presently owning track-measuring cars, in addition to the Santa Fe, are the Chessie System, the Southern, the Canadian National, the Boston & Maine and the New York City Transit Authority.

The C&O, predecessor of the Chessie System, was operating a track inspection car as early as 1937. A second generation version of this car has an onboard computer which produces printouts of defects that exceed standards set by the road and also of conditions on a mile-by-mile basis. A feature of this car is an electronic gauge checker which replaces mechanical feelers. The rear end has a glass door and large glass windows, which permit visual inspection of the track from comfortable chairs provided for the purpose. This car is drawn over the railroad on the rear of freight trains.

The Southern was the second road in the U.S. to acquire a track inspection car. Constructed in Southern shops and placed in service in 1971, this car was later fitted with a computer so that the measurements could be processed in real-time. The car detects conditions requiring attention and also produces a numerical rating of track quality on a mile-by-mile basis. The Southern's car, converted from a passenger car, is hauled over the road in regular trains.

Meanwhile, the Canadian National was developing its own track inspection car which was computerized from the beginning. This car was later upgraded by transferring the equipment to a better passenger car and adding superelevation to the parameters measured. In the CN's car the measurements are made by steel wheels and the quantities are converted to electrical impulses which feed data to the computer. This car is reported to be capable of measuring track at speeds up to 100 mph.

The track-measuring car owned by the NYCTA was designed and built by American Railroad Curvelining Corp. A feature of this car is that the feelers can be retracted when not in use. Another is that the chart on which the measurements are recorded is monitored by a closed-circuit television circuit and repeated on screens at both ends of the car so that engineers can observe the graph and the track simultaneously. This car may be self-propelled and the measurements can be computerized.

A number of track-inspection cars are commercially available. One is the Trackfax car offered by Tamper. This self-propelled car not only measures and records on chart paper all the major parameters but also is available with a computerized system, called the Tamper Valuator, Model TV. This system produces an immediate printout of track deviations exceeding a set level and also summarizing track conditions on a mile-by-mile basis. The car owned by the B&M is a Trackfax car but does not have a computer.

The latest proprietary track-measuring car to be introduced into this country is the self-propelled Plasser EM-50 Track Inspection Car. In this car strain gauges are used to convert mechanical movements into electrical signals which actuate the electric chart recorder. During the past year this car was used to measure practically the entire Union Pacific system and has been operated on other roads. It is now in process of being redesigned on the basis of operating experience.

It is understood that Plasser American Corp. and Ensco, Inc., have formed a new company which will take over further development of the Plasser car. It is further understood that the new company will offer to the railroads a track-inspection car incorporating the Plasser system for measuring the track parameters and converting the values into electrical impulses, and a system developed by Ensco for displaying and processing the track data.

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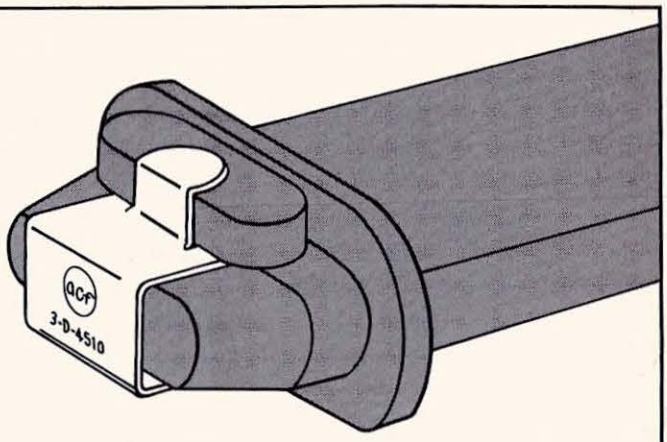

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Santa Fe: New track-car role?

(Continued from page 30)

sured. In this way, says Kaelin, it will be possible to determine the performance of a particular freight car on the same track at various speeds. He visualizes that such studies might be used to determine the optimum operating speed of existing cars on Santa Fe track, to develop the level of track maintenance required to give acceptable ride qualities, or even to produce guidelines for the design and maintenance of freight cars.

Although the car is so designed that it may be incorporated in passenger or freight trains when in operation, interviews with Santa Fe officers seem to indicate a preference for operating it as a special train. Kaelin points out that maximum utilization can be obtained in this way, noting that the potential is about 300 miles of track measured per day. The fact is that the car has been operated as a special train ever since it was placed in initial operation Sept. 3.

The modifications made in the business car to adapt it for measuring track were extensive. In this work the end-of-car cushioning was modified for shock control, all-new electric air conditioning and electric heating systems were installed, the floor plan was totally revised to include, among other things, living quarters for the crew, twin 30-kw diesel generators, and bay windows to facilitate identification of landmarks, mile posts and other wayside features.

Track Geometry Car 85 is the result of a high degree of teamwork between Santa Fe personnel and others. Design and construction were directed by Kaelin who reports to Larry Cena, operating vice president. The consulting firm of Railtech & Associates was involved in the design of the car and the builder was Modern Machine & Tool, Newport News, Va. The computerization aspect of the design was handled by the Santa Fe's information systems department under the direction of R.E. Robinson, assistant vice president, information systems. The engineering department, under the general direction of Autrey, will have charge of the scheduling of the car. Maintenance and expansion functions will be in the hands of the research and development department which will also furnish the three-man permanent staff required for operation of the car.

Santa Fe people are not overlooking any bets in making effective use of their sophisticated track geometry car. They figure that, if effectively publicized, it is certain to enhance the image of the road in the eyes of the public. To this end the car has been made the subject of a television commercial. ■

The next harvest: Rails are ready

Almost without exception, the railroad industry is in a far better position now to handle another record grain harvest than it was a year ago—thanks to equipment acquisitions and to improved operating techniques and greater cooperation among all elements of the grain-distribution business. Case in point: Missouri Pacific, where grain traffic (on a ton-mile basis) has been running about 190% ahead of 1972 levels (compared with an increase of about 60% for the industry as a whole). Looking ahead to 1973-74 movements, MoPac President John H. Lloyd puts it this way: "Grain will be moving in even greater quantities than it did in 1972-73. There undoubtedly will be some problems in handling such an abnormal haul. But we feel far more optimistic now that the grain distribution chain will be stronger than it has been during the past year."

Acreage, he notes, has been increased "and the grain harvest will exceed last year's record output. It's also likely that export sales will be even higher. . .and that domestic demand will rise. We expect the car-supply situation to be tight and we cannot help but anticipate some shortages in equipment. But we certainly don't expect as severe a situation as we had last year and the first half of this year." Among Lloyd's reasons for optimism:

—Improved car supply. MoPac, he says, is nearly doubling the number of cars assigned to grain movements, to about 8,000 units (covered hopper and other types of cars). Trainload movements of grain are also helping to increase car utilization.

—Use of truck-substituted service to move grain from country elevators to major inland terminal elevators. This means "new business for the local trucker, more cars for terminal elevators, better equipment utilization for the railroad and retention of cost advantage for the shipper."

—Better coordination with the ports. The AAR now has more discretionary authority to impose embargoes when port elevators appear to be getting too congested. MoPac has also had some success with a permit system.

—Better spacing of grain movements over an entire year (as opposed to the recent experience, in which the huge volume seemed to come all at once).

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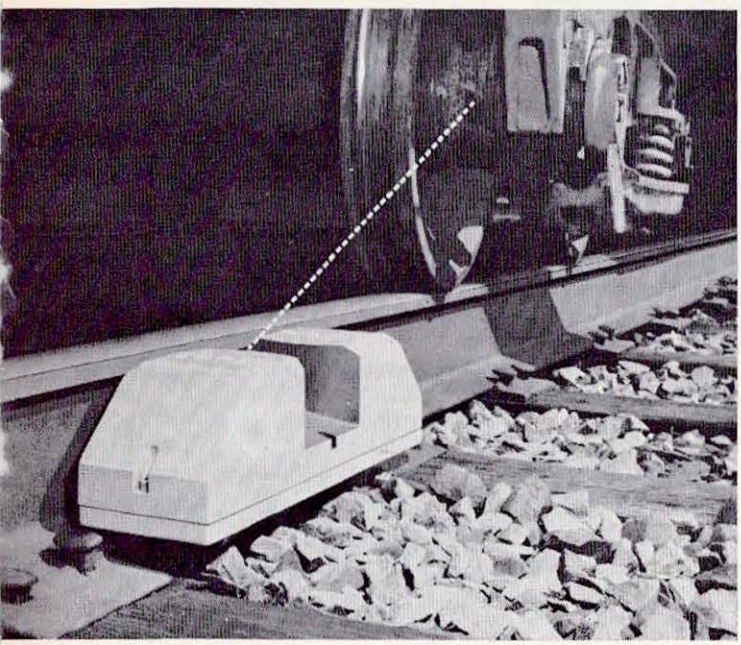

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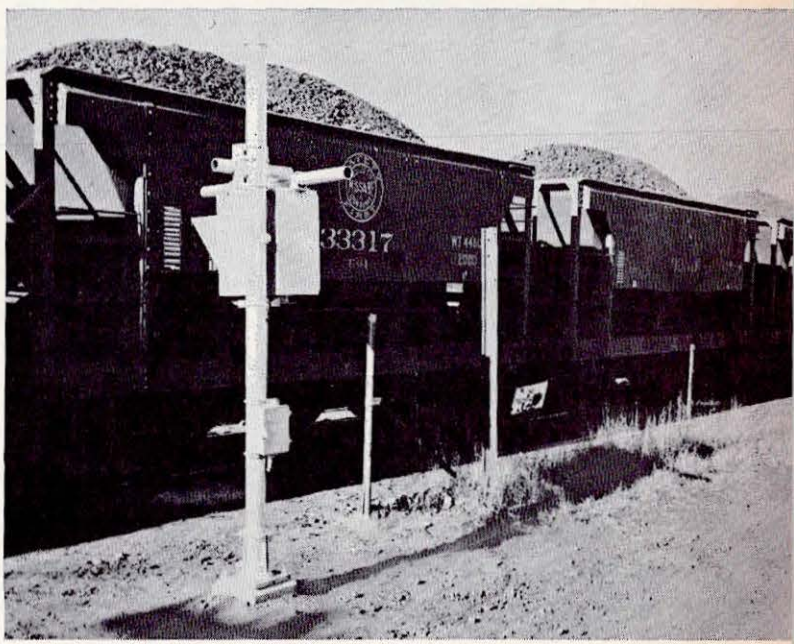

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MEMBER RPI

WEED-FREE TRACK on a railroad in the northwestern part of the United States was evident five months after an application of 3 lb of SPIKE per acre.

New herbicide for total vegetation control

A new experimental herbicide, designated SPIKE (EL-103), is being developed for total vegetation control by Elanco Products Co., a division of Eli Lilly & Co. Evaluation of SPIKE began in 1969 and registration has now been requested for use in total vegetation control. The price of SPIKE will be established after registration is received, Elanco states, which should be in the near future. Package size of the product will be in 4 and 50-lb containers of an 80% wettable powder and in 5, 10 and 20% pellets.

For the treatment of large areas, the supplier recommends the use of a fixed-boom sprayer properly calibrated to a constant speed and rate of delivery. For small areas, a tank-type hand sprayer or sprinkling can may be used.

SPIKE is a thiadiazoylurea compound that is a colorless solid and has a solubility in water of 2.5 mg/ml. It is said to be light, non-corrosive and non-flammable. The oral acute LD_{50} of the product is said to be 500 mg/kg or higher in the several animals and fowl tested. Rats, rabbits, dogs, mallard ducks and fish are said to rapidly absorb, metabolize and excrete the product through the kidneys.

At recommended application rates, the supplier states that SPIKE has provided longer residual control of vegetation than any other commercially available product. It can be applied at any time of the year except to frozen soil or to areas with standing water. Vertical leaching in soils is slow. Once it is attached to soil particles, its lateral movement is claimed to be virtually nonexistent.

SPIKE has foliar activity. However, it is primarily absorbed through the root system following activation by rain. It may be applied as a pre-emergent or a post-emergent to weeds and is active on both herbaceous and woody plants.

Early evaluation of the material was on small replicated plots. This work was expanded greatly in 1973 when large demonstration plots were established under an experimental permit. In this program, Elanco worked with several railroad commercial applicators. The company also worked with commercial applicators specializing in treatments to industrial sites and to storage areas. Over 40 railroad and as many industrial site applications were made in 1973 under the Experimental Permit Program.

Prior to heavy growth, SPIKE was applied alone. But when heavy weed growth was present, it was used in combination with 2,4-D, ATA, MSMA, Roundup, Banvel-D, and Paraquat at recommended or normal use rates.

• **Activated by rain.** The degree and length of control with SPIKE varies with the rate of application, soil type and rainfall, the supplier reports. Rates for maintenance weed control (areas previously treated) are often one-half of those needed for initial control. It appears that rates required for coarse gravelly soils will be less than for agricultural soils, the supplier states. Rainfall is required to activate it. Above normal railfall will reduce the length of control.

Elanco reports that the test results show that rates of 2.5 to 5 lb per acre will provide full-season control of annual broadleaf and grassy weeds as a maintenance treatment to railroad ballast. At relatively low rates of 4 to 7.5 lb per acre, it was found to give good control of brambles, fingergrass, most perennial grasses, common mullen and bouncing-bet. Control of forage legumes generally requires rates of 10 lb per acre. This rate is said also to provide control of gopherapple, Lantan and milkweed.

The tests show that varying results have been observed with the control of Bermuda grass, vines, Johnsongrass and trumpetcreeper. A second application the following season resulted in a significant improvement in control of these weeds, Elanco states.

Railroad trials and several of the industrial-type sites are continuing to be monitored by Elanco. Results of these trials are said to be encouraging. Overall, says the manufacturer, SPIKE has: (1) Provided long residual control; (2) controlled a broader weed spectrum; (3) shown versatility in timing of application, pre-emergence and post-emergence; (4) negligible lateral movement; and (5) been easy to apply and compatible with other available products. ■

Small wonder

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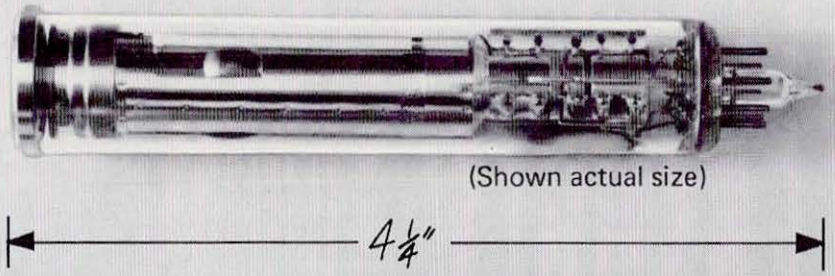

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Who at the first Indianapolis race could have foreseen the fate eventually to befall the auto? After all, everyone knew that those who possessed the auto possessed the world. Weekend trips to the lake, cooling spins on hot summer evenings, vacations to anywhere and everywhere—all were possible if you owned an automobile.

Now, with more people than can possibly squeeze their cars into traffic-jammed city streets and parking spaces, the automobile has been rendered virtually useless in our urban environments.

In our frantic attempts to preserve the auto's efficiency, we've succeeded in bulldozing our cities into more car choked streets and overflowing parking lots, and allowed still more urban land to be consumed by filling stations, salesrooms and other car-related facilities. "Smog" is now an everyday word in our vocabulary.

In protest, many of our cities are giving the "yellow flag" to the automobile. Outraged San Franciscans stopped a downtown expressway in midair. Boston passed a law against any further highway construction. Dade County officials have protested they would need National Guard protection to build another highway in Miami. In 28 urban areas, there are people now studying ways to limit auto use.

Just when things are looking worse than ever for the auto, what should come gliding in on shiny steel tracks—ready to save the auto from its incredible metropolitan mess—but modern rail transit!

Rail Transit is an auto's best friend.

Pioneer systems have been around so long that many people only think of rail transit in terms of old, dated equipment. But those are being modernized, and there are new systems in Mexico City, Montreal and San Francisco which are attractive, comfortable and reliable. Many other cities are also planning new systems and expanding existing lines, and modern light rail vehicles are being built for Boston and San Francisco.

It's becoming clear to all of us that rail transit can do what cars cannot. It can bore into the hearts of cities with immense numbers of commuters—without an impossible number of cars to be parked, or clouds of poisonous air to be breathed.

When the auto stops trying to win the race downtown, it will come into its own again—once more king of the road.

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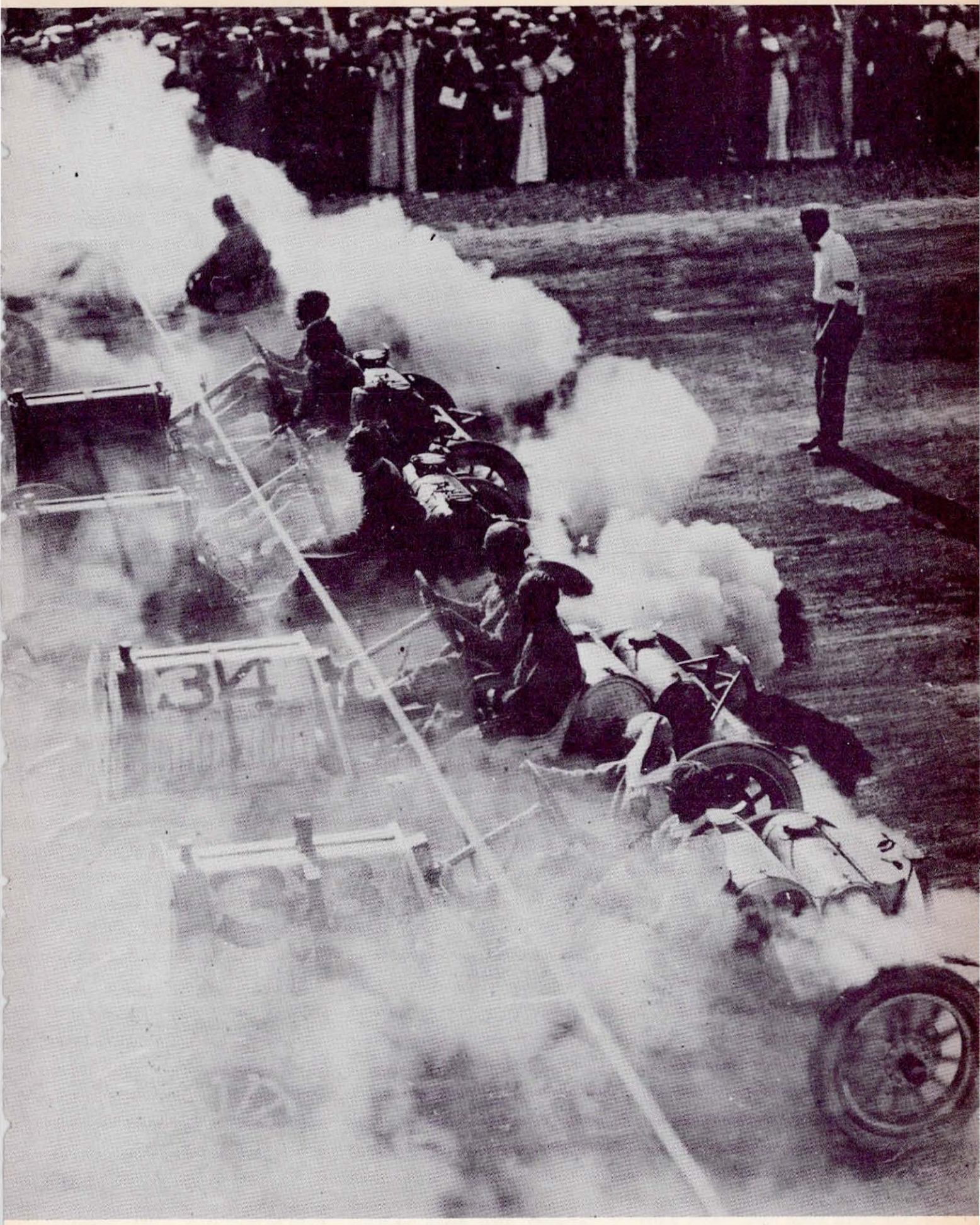

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ST. LOUIS TERMINAL DIVISION Project Director Vern G. Dyer (right) and Associate Director Frank J. Zamarioni talk about change in an on-site inspection in the terminal.

St. Louis project seeks to speed MP terminal movements

By GUS WELTY, Senior Editor

If it's true that many of the railroad industry's major operating problems—and, therefore, service problems—are terminal-related, then what's happening on Missouri Pacific's St. Louis Terminal Division has to be of vital interest, nationwide and among all groups concerned with rail transportation.

"What's happening" is that Missouri Pacific management, labor organizations and employees, AAR and FRA are launching a joint project to determine what can be done—in any and all areas—to improve the movement of cars through a terminal.

A national management/labor/AAR/FRA task force had three terminals under study for the "joining hands" project—and its choice of St. Louis was an apt one. MoPac's terminal division has about 95 miles of main track and about 300 miles of track including yard and other trackage. It has four major yards on the west side of the Mississippi River and one major yard on the east side (Dupo, which is really a terminal within a terminal, with seven yards in what is called Dupo). There are five switching districts, and interchanges with seven other roads. About 2,100 employees, management and union, are concerned with terminal-division operations. The total handle per day is about 8,500 cars (in-and-out count), on both sides of the river.

● **Emphasis on experimentation.** The project is set up to run for 15 months, from Oct. 1 through 1974. It's going to be concerned with experimental changes in work rules. It's also going to look into such things as railroad operating practices, interchange agreements, per diem, demurrage and government regulations that affect operations. The task force itself is headed by D.W. Collins, assistant general secretary and treasurer, United Transportation Union. Its make-up includes top-level people from AAR and FRA, from MoPac, Illinois Central Gulf, Norfolk & Western, Southern and Penn Central, and from the Brotherhood of Railroad Signalmen, Brotherhood of Locomotive Engineers, Brotherhood of Railway and Airline Clerks, Brotherhood of Maintenance of Way Employes and Railway Employes' Department.

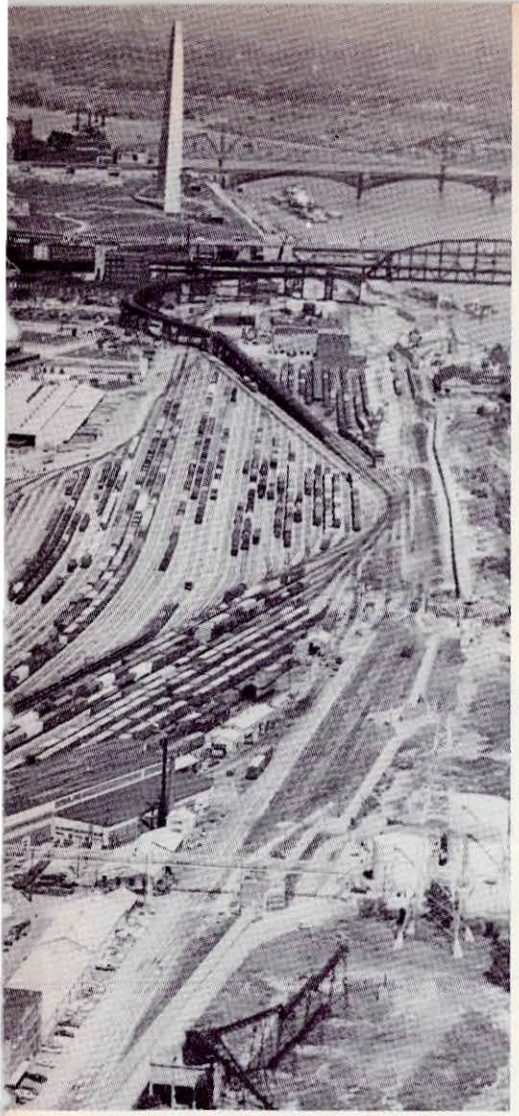
Vern G. Dyer, a former division superintendent and most recently manager-systems planning for MoPac, is project director. Associate director is Frank J. Zamarioni, UTU general chairman from Alton & Southern, and a man also thoroughly familiar with operations in the terminal area.

And the most important thing which the project has going for it? All concerned are pledged to try to make change work.

The basic job which Dyer and Zamarioni will have is to develop, organize, coordinate and monitor experiments in terminal operations—working with on-the-ground terminal management, with the labor organizations where necessary and with connecting railroads where necessary.

A practical man, Vern Dyer is looking first to "see if we can't do a lot better with what we have to work with." The main objective, in anything that may be tried, will be "to give a better service, then create better jobs for railroad workers—and get an increase in profitable business."

● **Startup soon.** It's expected that the first project may be under way by yearend—and it's quite likely that it will involve a hopefully-better way of handling transfers, and better utilization of crews. An experimental change in this operation, Dyer figures, "could afford better service to customers. Transfers could be made more quickly, especially



CHAIRMAN OF THE TERMINAL TASK FORCE is UTU's D.W. Collins (right). With him are MoPac's John W. Toler (left) and V.F. Davis, director-department of wages and schedules, BLE.

LESPERANCE STREET YARD, within sight of the Memorial Arch, Busch Stadium and downtown St. Louis, is one of the four major westside yards on the terminal division.

if we have hot cars to move, without disrupting switching operations or industry service. We can cut down on car detention. And again, we can make better use of crews."

It should be noted—and emphasized—that the task-force policy includes a provision that whatever experiments are tried, "no employee will be adversely affected." At the same time, the need for change is being stressed.

UTU's Dan Collins, task force chairman, puts it this way: "Barriers to change will have to be set aside for the duration of the project if success is to be achieved—because we are searching for ways to do things better." The whole project, he says, "has been designed to prove the point that rail workers and managers, when equipped with the right tools, attitudes and support, can work together to resolve problems that hold back the growth of our industry. At St. Louis, we seek three things: More reliable service for shippers, more business for the railroad industry, and better jobs for railroad workers. That's a worthwhile undertaking."

● **Guidelines set.** So far as employee-protection is concerned, John M. Toler, MoPac assistant vice president-transportation and MoPac's representative on the task force, has told employees that "the project is purely experimental, and any possible permanent changes affecting work rules will, of course, be subject to the normal procedures under the Railway Labor Act. Employee-protection guidelines will assure that no employee will be adversely affected with respect to wages, rules and working conditions while the pilot project is in operation."

Actually, Dyer, Zamarioni and the task force itself already have a pretty good idea of what deserves attention—an idea born of years of experience with operations in the terminal, with help from a preliminary study of the terminal made by the task force three years ago.

Initially, project managers will be submitting detailed plans to the task force for approval before any experiments are begun. They'll describe the problem-situation, the proposed change, the hoped-for benefits and the proposed methods for measuring the effects of change (with monitoring through MoPac's Transportation Control System computer analyses, through time studies and by on-the-ground observation).

The project team is looking at six months as a legitimate and logical period over which to conduct and measure most experiments—though they also note that there may be a few changes that can be gauged in as little as 30 days.

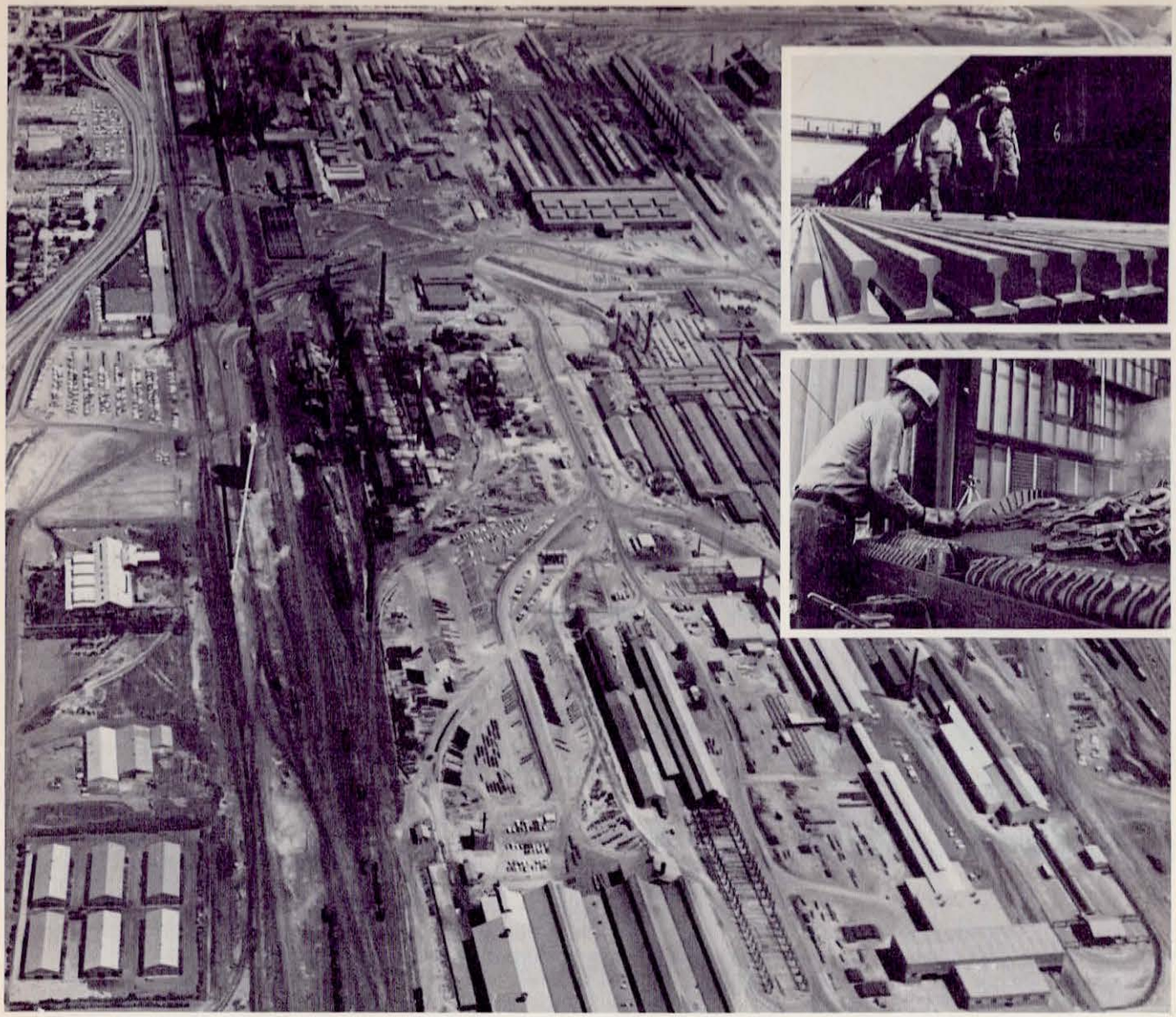
The budget for the project is being developed. Financing, however, may not be as important in the long run as the degree of cooperation gained from management, labor and other railroads. Experiments and their results will dictate to both labor and management the need for possible rule change. (Another experiment, for example, can involve the handling of locomotives within the diesel shop area. It could result in a time savings in locomotive idle time and allow a more flexible use of manpower).

The project team also vows that management practices will be coming in for change. One possible experiment: A test scrapping of the 24-hour per-diem setup (and the pre-midnight-trots it produces) in favor of something more on the order of an eight-hour per-diem cycle. A restructuring of the present interchange rules would eliminate, it's believed, "many foolish moves we are now making."

● **Open communications.** Through the test period, Dyer and Zamarioni will also be working with terminal Superintendent W. Crimm and General Manager W.J. Farrell to keep lines of communications open in both directions—to inform terminal-division employees of what's happening and, maybe even more important, to encourage terminal-division employees to contribute their ideas to the project. Customers will also be asked for their ideas, and the project managers have a traffic man assigned to their group to coordinate customer-related matters.

Over the years, there has been a lot of talk—and precious little action—regarding operational changes at the gut level. But never, perhaps, has there been a project of the scope—or of the start-up promise—of the St. Louis project. If all the pledges of cooperation hold up, it may be as Vern Dyer hopes it will be: "If we can do any good at all, we won't be doing good just for Missouri Pacific—because maybe we'll come up with changes the whole industry can make use of."

As Dan Collins says, it's a "worthwhile undertaking." ■



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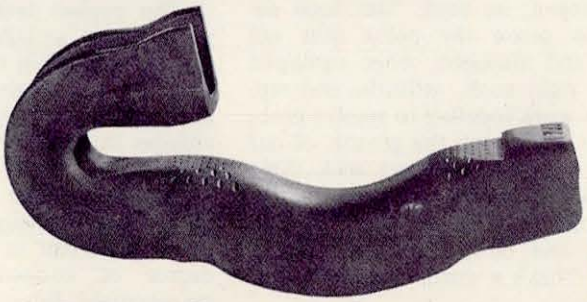

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Circle 45 on coupon page 59

Rebuilding the Northeast railroads

When (and if) legislation is passed creating the Northeast Rail Corp., there will remain the formidable task of raising the constituent lines of the new corporation to acceptable operating standards. At a meeting of the American Railway Engineering Association in Philadelphia Oct. 25, Penn Central's executive vice president—operations, J. Bruce Addington, addressed himself to this problem. Excerpts from his comments follow.

Very soon we are going to start one of the biggest upgrading jobs in the history of American railroading—the reconstruction of a viable railroad system in the Northeast which can only come about by one heck-of-a-lot of improvements in physical plant. . .

It's a big challenge—but one we're going to be able to meet, providing we have the money.

I and everyone in this room know that a great part of the service Penn Central and five other bankrupt Eastern railroads provide is indispensable—and that service isn't going to simply disappear in a wisp of bankruptcy smoke.

Congress and the Administration fully realize how important the service of these bankrupt railroads in the Northeast is to the nation. Right now legislation to keep these railroads operating under a newly-created entity is being fashioned and finalized.

In regard to that legislation, I think it's worth mentioning that we feel it does come up short in at least one specific area—i.e., interim financing between now and the time a new corporate entity is formed to take over Northeast railroad operations. It's estimated that that time period will be between one year and probably 18 months or longer.

Of great interest to everyone, I suspect, is exactly how big that railroad system—or systems—will be and what parts of which railroads among the bankrupt lines will be retained.

That's not the kind of speculation I'm about to embark on. But I do know this. We're going to have to do some mighty fast footwork in upgrading these railroads—both for safe operations under new Federal Railroad Administration standards, and to regain our competitive stance in the Northeast vs. other modes of transportation.

We've already made a beginning toward these goals on the Penn Central. But the major problem we've faced since the start of our reorganization some 40 months ago is that although we've made progress, we've had to pay for the sins of the past. And one of the biggest sins we've had to cope with is an inadequate plant. . . .

In September 1970, when Bill Moore was named president of Penn Central, he and our Trustees recognized the inadequacy of the physical plant and set out to do something about it. Some of our efforts are worth noting. These include expansion of Selkirk Yard, the upgrading of a good North-South route, and many centralized traffic control projects.

Since reorganization got underway, Penn Central has installed almost two million crossties annually. This is 50% more ties per year than the three predecessor railroads combined installed during the 12 years prior to bankruptcy.

"We're going to have to do some mighty fast footwork.."

PC's J. Bruce Addington

This was accomplished in the face of several difficult barriers:

—First, our continuing shortage of cash for capital improvements.

—Second, the recent severe shortage of crossties. For instance, this year we could install 300,000 more—but they're just not available from suppliers.

—Third, and finally, the fact that the price of crossties has spiraled in just the past three years—going up by almost 25% in just the past 18 months.

Our efforts—though great—have not even made a dent in our crosstie problem. Just last week at a hearing before the Federal Railroad Administration in Washington on Penn Central's plea to have it exempted from new FRA track standards, our people testified that we should be installing 3.9 million ties annually for the next four to five years to totally rehabilitate our railroad, and thereafter 2.2 million ties per year to maintain it at that level.

Several other factors in our maintenance-of-way operations are of interest, for they show how much we have accomplished despite our obvious limitations.

Because we've had to reduce expenses on all fronts, we now have about 8,400 employees making up our maintenance-of-way force—down from 12,000 some three years ago.

Even with almost a one-third cut in our M of W force, we were able to install many more units of material.

A combination of management streamlining of our maintenance operations and maximum utilization of modern equipment has helped us in this regard, despite the fact that our expenditure for maintenance equipment was only $3.5 million from 1970-1972, much less than we should be spending. But again, we come back to money. It's simply not there.

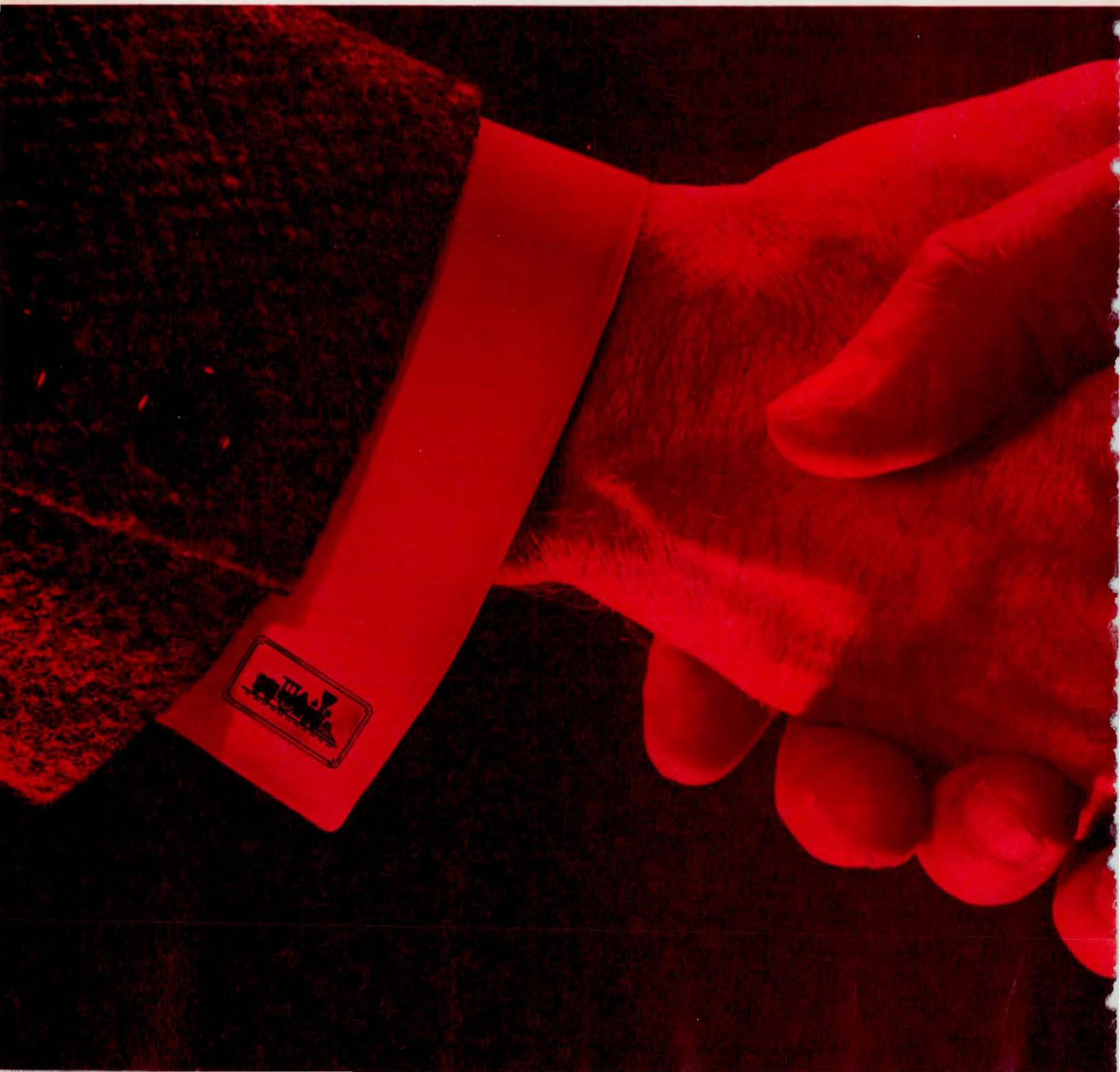
To show the depth of our quandary, in early September we had to arrange to acquire by lease nine switch tampers and 31 track smoothers. Leasing is the only method we can use to acquire such equipment because of our financial problems. But the equipment was needed, so we paid the price.

The physical plant, even if it were in perfect condition, is obsolete and redundant and is incapable of providing fast, low-cost rail transportation. It must be streamlined or rationalized, and then reconstructed to provide the type of service industry needs and railroads are capable of furnishing.

We recognized plant inadequacies and constructed modern classification yard facilities such as those at the key gateways at Selkirk, N.Y.; Elkhart and Indianapolis, Ind.; Columbus and Youngstown, Ohio, and Pittsburgh. They are capable of maintaining the existing flow of freight through these metropolitan areas. They stand out in contrast with our vast outmoded railroad complexes in the Jersey meadow areas serving New York City and northern New Jersey, as well as our equally inadequate facilities serving the Boston, New Haven, Philadelphia, Harrisburg, Cleveland, Detroit, Chicago and Cincinnati areas.

The legislative package I talked about earlier provides for substantial funds to modernize the Northeast railroad system—perhaps as much as $2 billion. I'm sure that this Federal funding will give us the financial tools with which to replace many of the antiquated facilities I've noted. ■

we believe i
AMERICA



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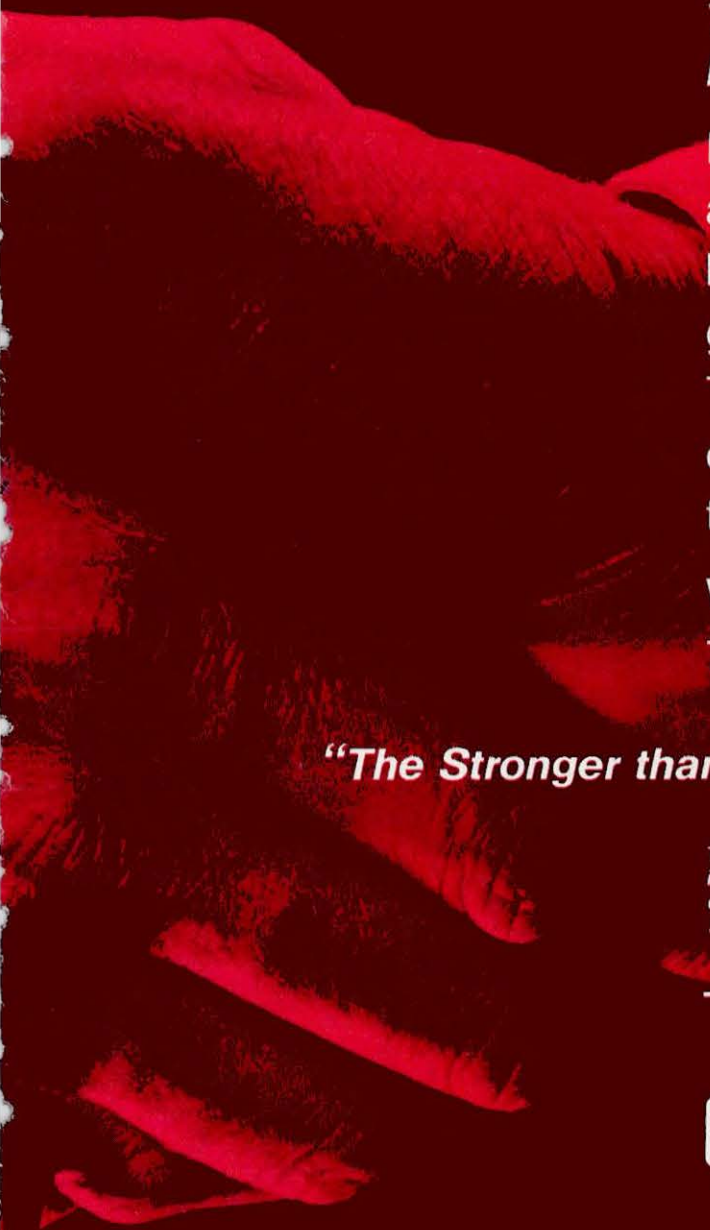

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Circle 18 on coupon page 59

Moving People

HOUSTON NIXES ENGINE TAX FOR TRANSIT

By a 3-1 margin, Houston voters have turned down a proposal that would have created the Houston Rapid Transit Authority, funded by a vehicular engine tax varying from $4 to $15. One reason advanced for failure of the HART campaign: a new law which restricts corporate contributions for political purposes. Thus, HART supporters were able to raise only around $80,000.

ONTARIO PREMIER CITED BY ATA

Ontario Premier William G. Davis, who shook up the highway industry when he ordered work stopped on Toronto's Spadina Expressway in 1971, has been named "Man of the Year" by the American Transit Association. Under Davis' leadership, said ATA, not only has operating and capital assistance been made available to public transit but "the premier has focused on urban transportation problems by carrying out broad-based regional studies and starting experiments with commuter rail and dial-a-bus service." Accepting the award at ATA's annual meeting in Miami, Davis observed: "If we are to save the city from the slow death of strangulation by expressway and highway arteries, the saviour must be rapid transit."

SOUTHERN ASKS FARE INCREASE

Citing "considerably greater losses from its passenger service on substantially the same passenger volume," Southern Railway has asked ICC to increase fares on Nov. 15. Southern has the most extensive non-Amtrak service in the U.S. and notes that while it receives no subsidy, its present fares are generally below those of the National Railroad Passenger Corp. Proposed rates of Southern would put it generally in line with Amtrak, but would still pay the line less than half the cost of operating its eight passenger trains.

ARBITRATION ALLOWS DALLAS ROUTE

Amtrak passenger service between Chicago and Houston would be rerouted through Dallas and over Southern Pacific, instead of going Santa Fe all the way south of Fort Worth. This is the ruling of an arbitration panel which was appointed after a move by Amtrak last June to make this change was blocked by SP, claiming that the track was unsafe for passenger service and would interfere with the line's heavy freight traffic. SP and Amtrak were ordered to bear equally costs of upgrading the track, installing a CTC system, and making other improvements to facilitate Dallas train service. Earlier, Dallas voters had approved a $6-million bond issue for acquisition of the presently unused passenger terminal in the Texas city.

STAINLESS-STEEL PRESENTATION AVAILABLE

A 30-minute slide-illustrated talk covering stainless steel in rail mass transit equipment is available from the American Iron and Steel Institute. AISI's Committee of Stainless Steel Producers provides the speaker for this presentation which has been prepared for municipalities and transportation authorities. Its theme is the benefits of stainless steel in passenger equipment in terms of safety, performance, appearance and cost. The history of stainless steel passenger cars is depicted. Agencies interested in the presentation should contact E.S. Kopecki, secretary, Committee of Stainless Steel Producers, AISI, 150 E. 42nd Street, New York, N.Y. 10017.

MARTA FUNDING CAN COMPLETE SYSTEM

Although Atlanta's proposed rail transit system would now cost $450 million more than estimates of 1971, MARTA "can be constructed and operated within the resources currently available," General Manager Alan F. Kiepper has told the board of directors. A year's delay in starting, said Kiepper, means that the first segment, the East line, would be completed in mid-1978 and the entire system would be operational in 1980. MARTA can continue its 15-cent fare and allow the current sales-tax aid to revert to a lower rate on schedule in 1982, the board was advised. Kiepper cited the increase in Federal matching funds, continued growth of sales tax income and a decline in inflation which has been running 14% annually over the past two years as crucial in the financial success of the MARTA program. Meanwhile, Sundberg-Ferar has been retained by Parsons, Brinckerhoff-Tudor-Bechtel to design a completely new commuter car for MARTA.

ATA SCHEDULES '74 MEETINGS

The American Transit Association will hold its 1974 annual meeting at the New York Hilton Hotel in New York City, Oct. 13-17. ATA's 1974 rail section conference will be held at the St. Francis Hotel in San Francisco, April 15-19. The association's western meeting is to be held at the Regency Hyatt Hotel in Vancouver, B.C., May 5-8. The midyear meeting of ATA will be held in Washington, D.C., at Loew's L'Enfant Plaza, May 20-23. (Because the previously-announced dates for the Sixth International Conference on Urban Transportation in Pittsburgh, May 20-21, conflict with ATA's midyear meeting, Pittsburgh will be rescheduled.)

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Circle 61 on reader service card

Slip-on tab terminals with pre-insulated sleeves.

AMP FASTON tabs and receptacles assure dependable, vibration-resistant connections. Insulated sleeve prevents accidental shorts. Available in straight-on type, and in flag type for use where space is a critical factor.

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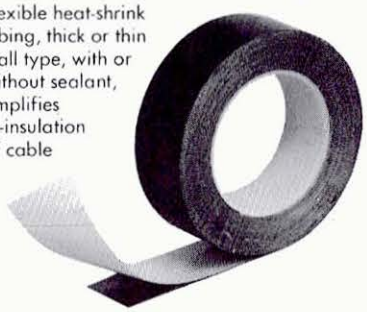
Heat-shrink tubing and tape for fast cable repair and sealing.



Flexible heat-shrink tubing, thick or thin wall type, with or without sealant, simplifies re-insulation of cable damaged by heat or mechanical mishap. Also insulates splices. Self-sealing tape permits fast, easy repair, sealing and weather-proofing of odd-shaped cable joints.

Circle 63 on reader service card

Short-proof terminals with bonded insulation.

AMP PLASTI-BOND ring and test terminals, especially designed for railroad applications, have insulating sleeve which extends beyond the terminal barrel. Even if insulation is cracked or accidentally pierced, there's no risk of short circuits in crowded blocks.

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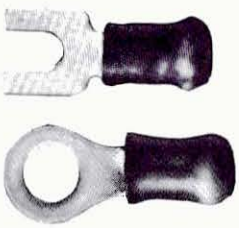
Pre-insulated PIDG terminals cover wide wire range.

Slotted tongue and ring tongue types for use with 22-10 AWG wire on barrier strips, power supply lines, control circuits and similar applications. Insulation is color coded for proper wire size ranges to assure foolproof termination with hand tools. Heavy duty types available for severe vibration service.



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Solderless AMP coax connectors for quick RF disconnect.

One squeeze of the crimping tool terminates inner conductor, outer braid and cable support simultaneously. No soldering iron needed. No danger of damaged insulation due to heat. Fast, reliable. Wide selection of single in-line connectors for communication and signal applications.

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Solderless connector cuts 25-pair cable termination time by 50%.

AMP Hand tool and CHAMP 25-pair connector lets you terminate 50 telephone wires simultaneously. Other special telecommunications products include AMP 3-minute Drop Wire Splice, line terminating blocks and connecting blocks, and AMP PICABOND wire splicing system for fast splicing without service interruption.

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Reader Service Card on Page 59

THREE STATIONS OF PARIS' NEW RER LINE: CHARLES DE GAULLE-ETOILE

AUBER

"I have seen the future and it works"

By GEORGE DUSENBURY

"I have seen the future and it works"

That half-forgotten line from Lincoln Steffens kept echoing in my mind as I airplaned, trained, automobiled and subwayed my way through a sort of poor man's grand tour of Europe.

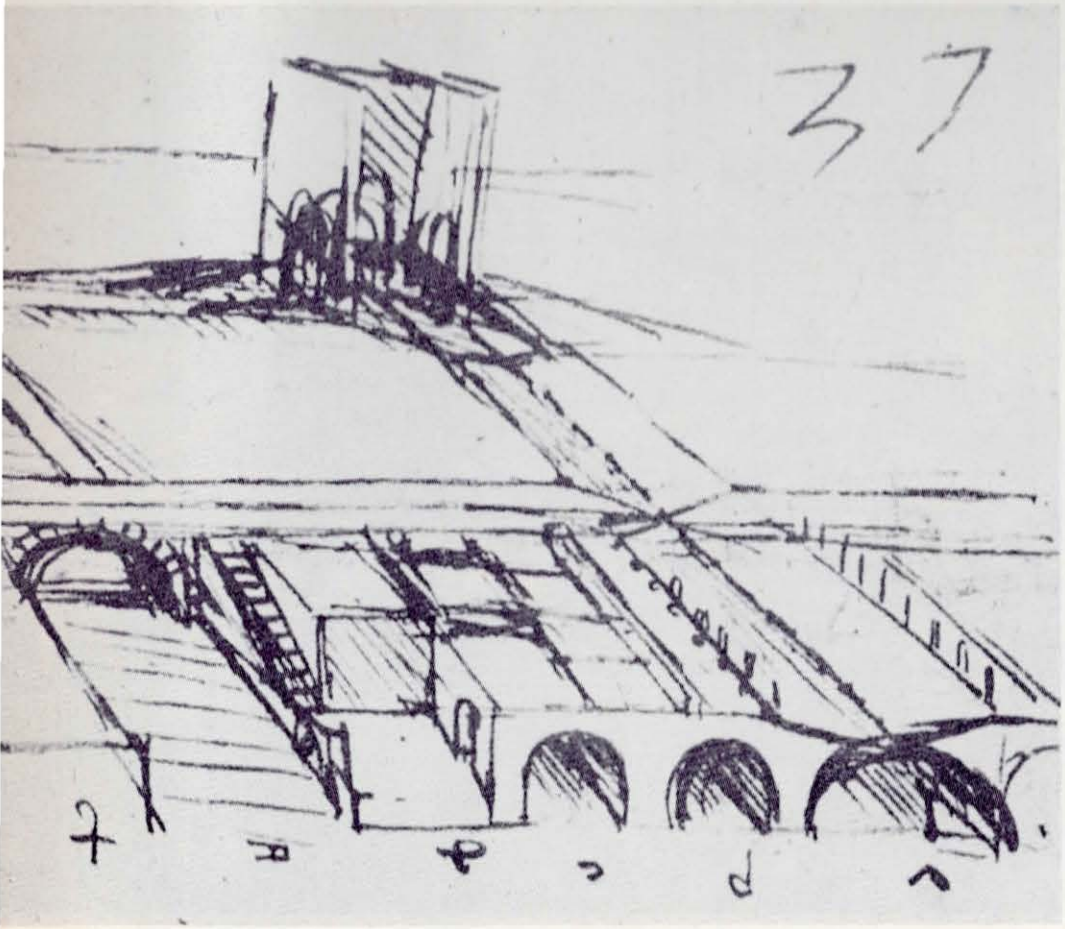
LONDON: We always stay at the Goring, which is just around the corner from the Underground's Victoria Station. The daily *rigor mortis* may be setting in on the bumper-to-bumper, hubcap-to-hubcap level above, but the lively Underground quickly whisks you pretty close to anywhere you want to go in London. Without it, we'd never have gotten young John to the Regents' Park Zoo on time, for example.

The Underground is too venerable to have evoked Steffens' line about the future, but its upholstered seats and other amenities are not to be sneezed at. If you could fly Detroiters, Chicagoans, Bostonians, New Yorkers, Atlantans and Los Angelenos over for a trip through the really marvelous London subway, they'd cry all the way home.

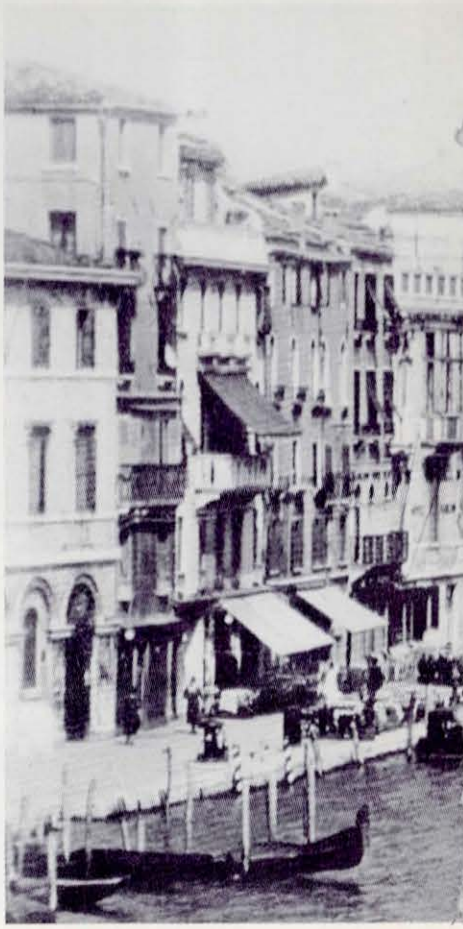
PARIS: We make a bee-line for the Metropolitain, going down the steps at St. Germain des Pres, even passing up a quick cup at Deux Magots across the street. As usual, the system seems a marvel of French logic. It has, for example, none of the absurdity of the New York subway's nomenclature—a gobbledygook of IRT, BMT, IND, 6TH AVE, 7TH AVE, BROADWAY, 8TH AVE, LEX, in which nothing is quite what it seems.

After some business above ground near the Opera, we go downstairs and unwittingly find ourselves in the middle of a scene in a 3-D science fiction movie. First thing we know, we're flowing along with everybody else onto a long, broad moving sidewalk. Then come automatic ticket gates, then a battery of down escalators. Then we are in a large concourse with the shapes and colors of a fairyland. Under a broad, arching, silvery ceiling are shiny, round places of business that look like a scattering of pool balls after a break. They are of hard plastic in various colors, flattened at the base, with three sides lopped off to provide windows and entry ways. They are something like 15 feet in diameter. I note the names in one cluster. There is a Credit Lyonnais, a Caisse d'Espagne, a Societe Centrale, a Societe fine Orientale (Greek cakes and sweets), a Station Optic Service, a Bis (employment agency), a cafeteria, where we have a beer while staring around popeyed, and a newsstand. I pace the width of the concourse—29 paces or close to 90 feet. The place is vast, yet the little round shops and offices lend it a comfortable human scale. There are exits and entrances along either side. One is labeled "Grand Magasins," so we must be approximately under Boulevard Haussman, close to the department stores Au Printemps and Galeries Lafayette. Other doors lead to various lines and we walk to the one marked Charles de Gaulle-Etoile, where an escalator takes over. The train platform below is another shock. It's *quiet!* Underfoot are large rubber tiles. Between tracks are what seem to be sound-absorbing baffles. A train glides in noiselessly. I expect to see it riding on rubber tires in the Paris Metro tradition. But the wheels are steel

UP TO NOW, Leonardo's dream of utterly separated vehicula



LEONARDO gave his ideal city subways for "wagons or vehicles such as these."



VENICE's gondolas, vaporettos, workboats and

and they're riding on steel rails. The map tells us that we have somehow blundered into Paris' brand-new Auber station, that we're at one end of a line and that the next stop is our destination, the Etoile (which from the nearby Opera station we thought we were entering is four stops, including a line change). We step into a superbly-designed interior. Shortly we're off, reaching what I judge to be quite a high rate of speed very quickly.

How can any first-time Auber visitor feel except exultant? What can he think except "I have seen the future and it works"? In no time, we're at the Etoile and an escalator returns us to the real world of roaring motors, squealing tires, beeping horns and the fragrance of *eau de burned gasoline.*

We stand facing the Arc de Triomphe, at which 12 converging avenues and boulevards aim and fire a series of 4-wheeled projectiles, generating the mad pinwheel of automobile traffic that circles the Arc. Mercifully, a pedestrian subway lets us walk out under this no-man's land to the Tomb of the Unknown Soldier—reminding us again that automobiles are automobiles and pedestrians are pedestrians, and never the twain shall meet except that the pedestrian shall be carried off on a stretcher.

You view one of our great cities at street level and you throw up your hands. What is there to do about this disaster that started out in the image of man and wound up in the image of the automobile? Blow it up and start all over? Then you think to yourself that of all the vast riches lying under the earth's surface—oil, coal, ores, precious metals, diamonds—perhaps the greatest riches of all are the unspoiled spaces under our great cities—spaces where we're given a second chance to solve the problem of transportation within the city, as Paris is now struggling so mightily to do.

With this thought, we turn back toward the center of Paris on the Champs Elysees, which are now more the Heavenly Fields of the automobile than of man. Strolling man has become scampering man as he dodges darting automobiles and squirms between the bumpers of parked ones. Today, the Champs Elysees is one big, long, open sardine can packed with parked cars. On either side of it is Automobile Row. The Peugeot salesroom occupies the first block on the left. Volvo is across the street and down a bit. Just beyond Volvo is Lancia. Then Fiat on the left, followed by Chrysler France, etc., etc.

MUNICH: We're hardly unpacked when we're off for the Olympic Games site, 14 year old son impatiently leading the way. We find ourselves in a pedestrian mall. No horns. No charging motorists. Delightful. We see a particularly attractive store window across the street and unhurriedly walk over to it. (How impossible Fifth Avenue will seem when we get back home.) Son soon spots a photo shop on the side we'd just left. We walk across and buy him a new camera to replace the one his mother was carrying for him when she was hit by a motorcycle while in a marked pedestrian crossing in Chartres.

If you can't drive into this shopper's and stroller's paradise, how do you get in? You can walk, of course. Or, as we shortly discover on coming to the station entry in the center of Marien-Platz, you can ride in on Munich's dazzling new Unterbahn. The down escalator doesn't seem to be working, alas. Young John is going to walk down it nevertheless. As he steps on the approach area, it automatically begins moving!

Underground, we're seeing the future again, as in Paris—and, again, it's work-

...and pedestrian traffic has been achieved only in Venice

barges can't travel on streets and bridges. Pedestrians can't walk on water. Result: 100% separation of traffic.

ing beautifully. The platform is spacious—about 24 feet wide. Walls are covered by 3 feet by 6 inch graffiti-defying glazed plates in a burnt orange color. Dark royal blue moulded plastic seats are cantilevered from the walls in pairs. An information board flashes the time and destination of the next train. It glides in on the dot and we're off. Seats are spacious, with almost 2 feet between seat front and the back of the seat ahead. Seats are in a rich blue simulated leather on the order of that in a Mercedes. Walls of the car are an indestructible-looking yet handsome wood-grained plastic. Maps of the line you're on are high on the sides of the car, with a map of the whole system on the ceiling. For ventilation, there are easily-reached, pull-back, basement-type windows up over the big panoramic windows. There's an overhead luggage rack for a bag or two at either end of the car. At doorways, glass plates are set above the backs of transverse seats so people entering or leaving won't rumple the hair or bash the hats of seated passengers.

Before we've taken much of an inventory of the delights of our car, its floating ride and the vari-colored, vari-patterned stations we pass through, we're at the Olympic Games site. We ride the escalator up, not into the yesterday of Paris, but into the tomorrow of the marvellous park, playground and permanent home for every sort of athletic competition which Munich has made out of its Olympic Games complex. We admire the gleaming, curved, overhead catenaries of buildings and shelters by architect Frei Otto, who did the memorable multi-poled "tent" for the German pavilion at Expo '67.

And now we sit in a large beer garden and ruminate. Suddenly it occurs to us why it is that the American traveler finds such terrible differences between his own transportation system and that of Europe (to say nothing of Russia, Canada, Mexico, Japan and South America). . .

We used to be the New World. But now we're the Old World. And while Europe is getting newer and newer, we're getting older and older.

To look around you in Germany, you'd think that *they* won the last war—and in a sense perhaps they did. The guns and bombs pulverized much of Europe's mechanical plant—both factories and transportation system. Amercia gave generously to the rebuilding of the mechanical plant. And today Europe—and Japan—have a superb new plant that is beating our ears off, to judge by the dwindling flow of U.S. cars abroad and the rising tide of Mercedes, Volkswagens, BMWs, Fiats, Toyotas and Mazdas we're importing, and the long-term worsening of our balance of payments.

In plain sight of where we sit—only a few good golf shots away—are the stunning new office tower and factory of Bavaria's BMW. It happens to be a brand new plant—not a replacement for a bombed-out factory—but it stands close to the Olympic Unterbahn station and the two of them form a picture I won't soon forget of the European New World. Does any American city have such a factory for auto workers? Or such a transportation system to get them to work? How obsolete can we get and still remain a first class power?

MODLING: This is a delightful little town, rather far out in the vast Vienna Woods section. Near here, in the 19th century, a man was drilling a well. He struck gypsum, which was then highly regarded as a fertilizer, and a gypsum mine was developed in the classic pattern of main and branching tunnels.

(Continued on page 54)

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3. The positive cam action ensures against accidental opening of valve from vibration.
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5. The Quick Opening and Closing Cylinder Test Valve assists in starting an engine with low batteries by permitting quick closing of the valves.
6. The Quick Opening and Closing Cylinder Test Valve enables anyone to vent the combustion chamber prior to starting an engine. This should ensure against the associated resultant damage due to hydraulic locking of cylinder.
7. The Quick Opening and Closing Cylinder Test Valve has been tested against leakage to five times its normal working pressure.
8. The valve seat is designed to eliminate burning and leakage in service.
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No Wrenches Required . . . Flip Handle Up - it's Open - Down - it's Closed!

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The Flour Power Car.

Handling's a lot simpler on ACF's Pressure Differential Center Flow car. In fact, one man can now hook up to unload in under 10 minutes. Because there's no bulky pressure sled to wrestle with.

We licked the sanitation problem, too. With hatches and outlets that seal out contaminants. So even difficult commodities arrive in superb condition.

At just 5 pounds pressure per square inch, the 5 psi car can also carry powders, pellets or granules. Economically. And unload them easily into highway trailers or silos.

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ACF's 5 psi car. We keep the pressure low and the efficiency high.

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MEMBER RPI RAILWAY PROGRESS INSTITUTE

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"I have seen the future..."

(Continued from page 51)

Today, it's a semi-flooded, abandoned mine and we tourists are lined up to walk down a steepish descent into the chill (we rent blankets at 10 pfennig each) and ride around in electric boats. I look down at the path and, sure enough, not quite buried are the steel rails on which the horse-drawn mine carts once traveled.

I am reminded of an ancient legend of India. It relates that the first men on earth were dismayed at the way stones cut and bruised their feet. They met to consider the problem and decided to cover the offending rocks with animal skins. "But wouldn't it be better to cover our feet with skins instead?" questioned one of them. He, according to the legend, was the first *guru*.

Where are our *gurus* today? Already, we've paved a third of the American city with streets and parking lots to little avail. What we really need for loading and unloading the packed central city are those narrow little shiny steel rails on narrow little rights of way, on which modern rail transit can operate with such fantastic efficiency.

MUNICH: "We find ourselves in a pedestrian mall. No horns. No charging motorists. . .We're seeing the future again."

VENICE: Leonardo da Vinci, who anticipated so many things, anticipated the subway. One of his drawings in particular, diagrams the proper anatomy of a city as he saw it. Pedestrian traffic above ground, horse- and ox-powered vehicular traffic below ground. Actually, this ideal of total separation of pedestrian and vehicular traffic has been achieved in only one city—Venice—and it took an act of nature to do it. Here the streets are water and thus the natural element of gondolas, barges and vaporettos—leaving to pedestrians the alley-like walkways, bridges and piazzas. As I stand on the Ponte dell' Accademia and view below the miraculous separation in which no boat waits for a pedestrian to cross and no pedestrian waits for the passage of a boat, I think of how much sweeter life will be in our American cities when we learn, as we

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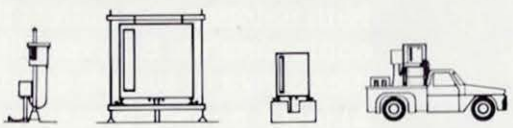

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- TERMINAL MANAGEMENT SYSTEMS
- FRONT END PROCESSING SYSTEMS
- MANAGEMENT INFORMATION SYSTEMS
- DATA CENTER FACILITY MANAGEMENT

Circle 29 on coupon page 59

ACI DATA ENHANCEMENT

This basic system includes ACI scanners, our label decoding processor (LDP), and a special software package to optimize scanning results through match of advanced consist with label readings. This special capability is provided by merely adding a second I/O interface and memory to our standard LDP.

You'll save money through reduced clerical costs, improved car handling and utilization.

We can have this system up and running in 60 days. It'll pay for itself within 6 months.

ACI Systems Corp.

Circle 30 on coupon page 59

must, the lesson taught by Venice.

PERUGIA: Walking through this still strongly medieval town, I have a vision of a knight in armor galloping down one of its streets—the serfs, as they used to call pedestrians, ducking into side alleys or flattening against walls. How little times change! Today, a knight of the road charges along on 100 or so horses, encased in a suit of 4-door armor with a shatterproof windshield for a visor. Us serfs, I would say, are now worse off then ever.

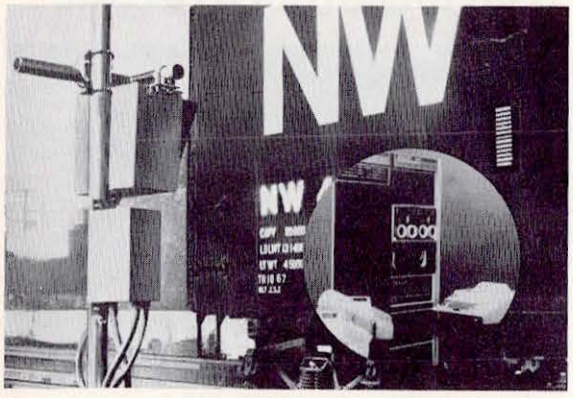
POMPEII: On the face of it, the suggestion that first-century Pompeiians had a horsepower problem not unlike that of a traffic-jammed 20th century city sounds ridiculous, but true it is. We're walking along a street of paving stones deeply rutted by chariot wheels. As we approach the forum, the street for vehicles comes to an end, terminated by three large barrier stones that rear up like concrete anti-tank barriers of World War II. "Keep your +&%@*!! horses and chariots out of the forum," they seem to say. If stones could only talk? Here, in this miraculously preserved Roman city, they do.

ROME: I am reminded of Federico Fellini's recent "Roma" as I walk the Roman streets. If you saw the movie, you'll remember the fun he had with the digging of Rome's new subway line. In one scene, the mechanical mole claws its way into a supposed great room dating back to the caesars. Colorful frescoes cover the wall. But as the 20th century air flows in, they rapidly fade away, to the dismay of all. A trumped up scene, of course, though the diggers reportedly do find it very difficult to deal with the buried monuments they encounter. But dig they must, as Con Ed says. Rome's one line is great—it saved my life one day when I had to get from near the Colosseum to Piazza Venezia in a hurry. But the city needs more lines desperately.

MADRID: The underground trains here with their sparking overhead trolleys remind me that much of the world—the U.S. in particular—is still in the Toonerville Trolley era of rail transit. Anyone who talks up the subways is Mr. Yesterday to New Yorkers, Bostonians or Chicagoans, or people who've visited their cities. (The musical raspberry "MTA" about the man who got on the Massachusetts Transit Authority and may still be riding there was such a hit that it helped make the Kingston Trio famous.) Do people realize how old these systems are? New York's first line from the Bronx through Manhattan to Brooklyn was planned in 1900. Boston's was begun in 1895. True, BART and Lindenwold are splendid updatings of U.S. rail transit—and you have to say for New York that it's the only system in the world that operates around the clock and offers express service. Still, U.S. rail transit is in the position GM would be in if most of its demonstration selling were confined to giving rides in 1903 Buicks.

NEW YORK: This, all in all, is my choice as the greatest city of the world, for all the beating it has taken from having the poorest and least educated of a nation dumped on it. I love it. How bright its future seemed back in 1939 when the World's Fair opened out on Flushing Meadows. Its theme was the World of Tomorrow. The show with the long, long lines was the GM Futurama. We all fell in love with that automotive future—swift, smooth, silent. But now we're living in it. And it doesn't work. Outside the city limits, it's great. Inside the limits—and the more so as you approach the city center—it's slow, it's costly, it's dangerous, it's hellishly noisy and it stinks. Obviously the automobile and rail transit were made for each other. Rail transit can do what the automobile can't—bore into the center of the city

RAILCAR INVENTORY



This system integrates ACI scanners to dedicated mini-processors controlled by our software. The system delivers automatic data enhancement, execution of diversion instructions, prepares switch lists, maintains track inventory, and automatically prepares interchange and train consist reports. You'll save money many ways, including: reduced clerical costs, lower crew and per diem costs, and better car utilization.

We can have this system up and running in 120 days. It'll pay for itself 6 months after installation.

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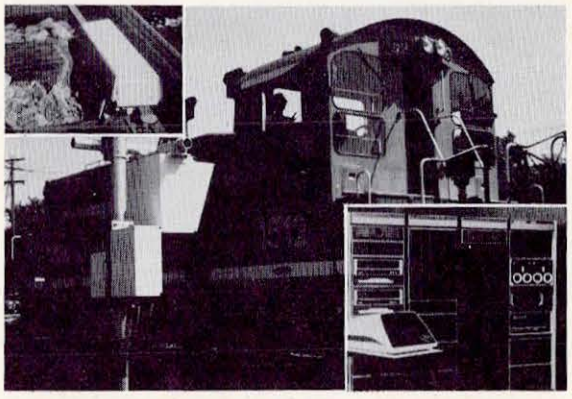
TERMINAL MANAGEMENT



Our Terminal Management Systems (TMS) keep you in control of dynamic operations and improve your return-on-investment.

These systems combine ACI scanners, wheel sensors, cardless communication devices, and dedicated mini-computers under unique program control. TMS automates your terminal or yard, produces repetitive waybilling (RWC) and data input, automatic track standing inventory, issues status changes and necessary reports, improves service scheduling, planning, and increases equipment and personal control.

We can have this system up and running within 12 months. We'll show you how to pay for this system within 9 to 12 months.

ACI Systems Corp.

Circle 32 on coupon page 59

quickly and cleanly with vast numbers of people. The auto can do what rail transit can't—fan out freely from the city with no schedules or tracked routes to worry about.

You can think of a million reasons why modern subways can't be built in the U.S. The gas-oil-cement people aren't about to let go their grip on the windpipes of our legislators. Subways take too long to build. They cost too much. They're antiquated (we *think*).

If only every man, woman and child in the U.S. could spend a few hours riding the splendid new subways of Europe. Long enough to note how transportation enhances the European's life (whereas our own transportation is something to survive every day).

We'd soon enough find a way to build modern subways.

POSTSCRIPT: Now that I've typed and eidted these notes and impressions, I find that two ideas have grown on me greatly since flying back from Madrid.

The first is the notion that America once again has a real, exciting, challenging frontier—one that lies *below* us. Paris' new Auber station and Montreal's fine stations and connected underground shopping complexes have shown us how agreeable an underground extension of our world can be. It can have some of the magic of the great caves, of the great interior space effects you see in Piranesi drawings of real and imagined buildings of the ancient world. Maybe the new underground should be lighted not too brightly, with pools of brighter light only where needed. How restful the gently-lit ground floor lobbies are in New York's new McGraw-Hill Building. The things you need to see are spotlighted and stand out better than they would in general glare.

"Once again we have an exciting, challenging frontier. It lies below us"

"A building exists for its interior," said Frank Lloyd Wright. I should think that the interior architecture of subway complexes could become as important and rewarding a field of architecture as any. Think of the many great temples of Egypt and India whose exteriors consist only of a facade cut into the rock face and whose interiors are carved out, cave-like, in the solid rock behind.

The second idea has been driving me nuts: how express the really shattering way the rest of the world is leaving us behind in making cities more liveable via modern *rail transit?* One eye-witness report doesn't carry much weight.

Then I remembered a recent study published in International Railway Journal, dug out a copy, pulled out my pencil and did a little arithmetic.

World over, I found, there are 21 cities that are now in the process of building *new* subway systems.

The now-building list is fascinating: Amsterdam, Antwerp, Calcutta, Charleroi, Frankfurt, Hanover, Helsinki, Kharkov, Kobe, Liverpool, Manchester, Sao Paulo, Tashkent, etc., etc.

How many of the cities are in the U.S.?

On the basis of world wealth—as expressed in terms of Gross National Product—you'd expect quite a few. Total world GNP as of 1971 is $3676.7 billion. Of that, $1050.4 billion is accounted for by the U.S. So our portion of total GNP is almost 30%.

On that basis you'd expect that something like 7 of the 21 new systems would be in the U.S.

Do you want to know what the U.S. count is?

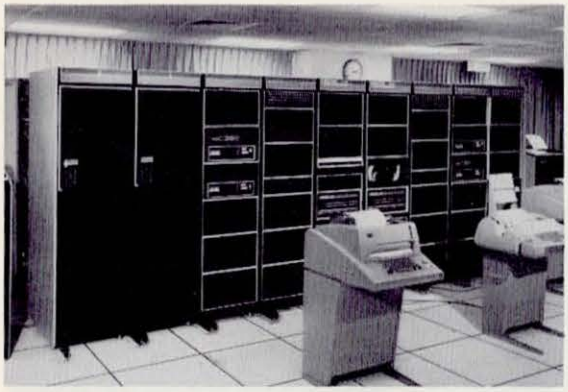
One (1) actually building.

Washington, D.C.

That's a pretty good fix on how the New World of Europe is getting newer and newer and the Old World of the U.S. is getting older and older.

Makes you think, doesn't it? ■

FRONT END PROCESSING



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We can have this system up and running in 18 months. You'll be surprised at how soon it'll pay for itself.

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People in the News

Kent P. Shoemaker
DT&I

William S. Cook
UP

Wm. J. McDonald
UP

Girard L. Spencer, Jr.
Coverdale & Colpitts

Robert T. Pollock
ATA

Jack R. Gilstrap
ATA

BESSEMER & LAKE ERIE.—**C.W. Morrison,** engineer maintenance of way, Greenville, Pa., given responsibility for long range planning for M/W Department, effective Oct. 1, and he will act as OSHA compliance and environment preservation officer for the road and related properties. **J.B. Wackenhut,** engineer track, given responsibility for all operations of the Track Department.

CARTIER.—**R.B. Barrowman** appointed general superintendent-transportation, succeeding **W.H. Freeman,** retired.

CHESSIE SYSTEM.—**Cyrus S. Eaton** elected chairman emeritus on Oct. 26.

CHICAGO & NORTH WESTERN.—**James A. Barnes** named assistant vice president and chief engineer, Chicago. **W.H. Huffman,** assistant vice president-engineering, retired Sept. 30 after more than 40 years' service.

Florence Pels, head clerk in computer scheduling, named manager-computer scheduling.

John F. Reimers, sales administrator, Chicago, named manager-sales administration.

DETROIT, TOLEDO & IRONTON.—**Kent P. Shoemaker** elected president and chief executive officer and a member of the board of directors, effective Nov. 1. Mr. Shoemaker, formerly assistant vice president operations, **Soo Line,** succeeds **Charles L. Towle,** retired.

DULUTH, WINNIPEG & PACIFIC.—**Philip C. Larson,** who has been associated with the **Penn Central** at Buffalo, N.Y., has joined the DW&P as superintendent at West Duluth, Minn.

ERIE LACKAWANNA.—**J.J. Dorsey,** trainmaster, Cleveland, appointed assistant superintendent, Mahoning Division, Youngstown, Ohio. **W.J. Parsons, Jr.** appointed trainmaster, Mahoning Division, Cleveland.

FRISCO.—**Richard C. Grayson,** president and chief executive officer, also elected chairman

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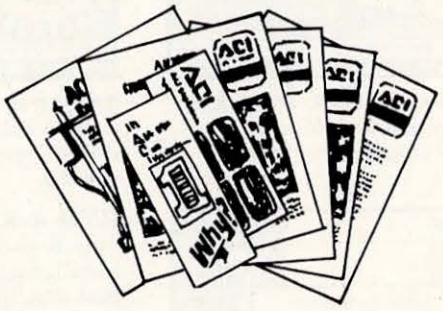

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of the board, effective Dec. 1, to succeed **J.E. Gilliland,** who retires Nov. 30. Mr. Gilliland will continue to serve as a director.

T.C. Wehner, assistant land and tax commissioner, appointed land and tax commissioner, to succeed the late **W.H. Thomas.**

GRAND TRUNK WESTERN.—**Earl G. Fontaine,** executive assistant to the president, appointed also secretary of the company, succeeding **Robert L. Livesay,** who has left the road to enter private law practice in Detroit.

ILLINOIS CENTRAL GULF.—**Otto H. Zimmerman,** executive vice president-operations, retired Nov. 1 after more than 37 years' service.

ILLINOIS TERMINAL.—**Michael C. Jacobs** elected vice president-operations, St. Louis.

MISSOURI-KANSAS-TEXAS.—**Clark L. Wollenweber,** sales representative, Denver, Colo., promoted to sales manager there, succeeding **William H. Hickman,** retired after 45 years with the Katy. **Donald W. Hosting** succeeds Mr. Wollenweber.

SEABOARD COAST LINE INDUSTRIES.—Has announced a realignment of executive positions and responsibilities, effective Nov. 1. **W. Thomas Rice** will continue as chairman and chief executive officer of the holding company as well as **Seaboard Coast Line** and **Louisville & Nashville** railroads. **Prime F. Osborn** continues as president of the holding company and will also serve as president and chief operating and administrative officer of both roads. **David C. Hastings** and **Donald D. Strench** elected executive vice presidents of SCL and L&N, respectively. They were formerly operating vice presidents of their respective roads.

Others elected for Seaboard Coast Line Industries: **Horace M. Emerson,** senior vice president-traffic; **Philip M. Lanier,** senior vice president-law; **Charles E. Mervine,** senior vice president personnel and labor relations; **R.E. Bisha,** senior vice president and director of resources development; **Donald T. Martin,** vice president-public relations; **James W. Plant,** vice president-planning and coordination; **William I. Johnson,** vice president-purchases; **Robert E. Northup,** vice president and secretary; **Robert F. Stiens,** vice president and director of taxes; **Richard D. Sanborn,** vice president-executive department; **Harold L. Snyder,** director of budgets.

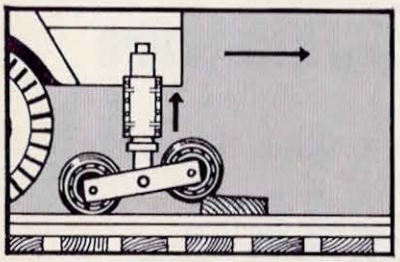
The following were elected for SCL: **Chester R. Lapeza,** vice president-operations; **Leonard G. Anderson,** vice president and treasurer; **John W. Weldon,** vice president-law; **Richard A. Hollander,** general counsel; **William B. Seymour,** assistant vice president-personnel and labor relations. **Francisco X. Mendoza** appointed assistant to vice president-operations-intermodal, Jacksonville, Fla. **G.M. Mann,** manager pricing, Jacksonville, and **J.M. Enders,** general agent, Seattle, Wash., retired after 43 and 34 years of service, respectively.

The following were elected for L&N: **C.N. Wiggins,** vice president-operations; **Joseph L.**

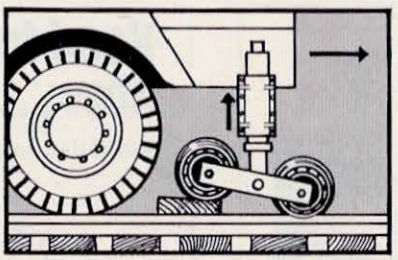
(Continued on page 62)

RYD-A-RAIL ENDS DE-RAIL AND LOAD SHIFT PROBLEMS ON BIG TRUCKS.

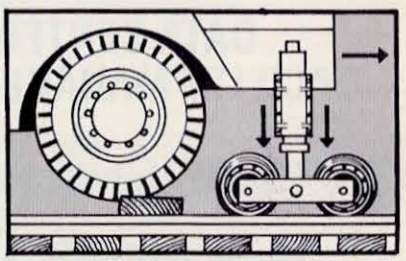
EXCLUSIVE AIR-OVER-OIL CYLINDERS GIVE SAFE SMOOTH RIDE... PROTECT AGAINST LOAD SHIFT... INCREASE SERVICE LIFE



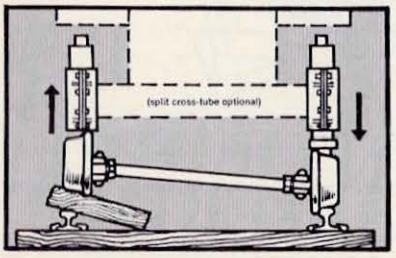
In actual demonstrations, Ryd-A-Rail units have passed over 4-inch obstructions repeatedly without de-railing.



Raised frogs, switch points, or debris covered rails no longer need be threats even to largest road-to-rail vehicles.



Working from movie film our artist has illustrated how exclusive Ryd-A-Rail air/oil action keeps wheels on track.



Ryd-A-Rail also keeps big vehicles level with each wheel reacting independently thru our air-over-oil cylinders.

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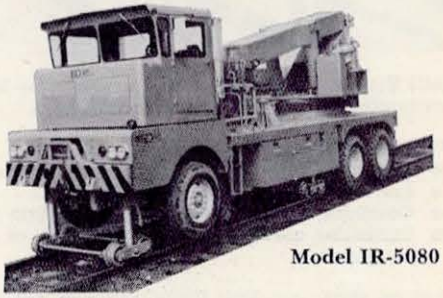

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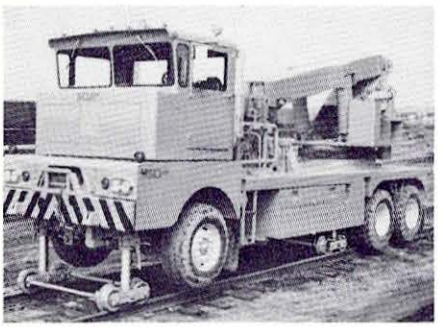
New Products Report



Quick help in terminals for rerailing equipment

An hydraulic mobile crane, with 75-ton capacity and 360-degree rotation is available from Isco Manufacturing Co., Inc., for a variety of rerailing and industrial applications. This unit, IC-75 MHC, is said to be a useful tool in terminals for handling derailments, wheel and truck changes, in and around classification and switching yards, and as support for main-line derailments.

Built around a rugged 14-inch wide-flange beam siderail frame, the mobile hydraulic crane has semi-elliptical leaf-spring front suspension under a Rockwell drop-forged front axle. The Isco/Cline rubber load-cushion rear suspension is combined with a Rockwell double-reduction tandem-drive rear axle with inter-axle differential and power lockout. Various power options are available. The IC-75 MHC has an 8-foot main boom with a 7½-foot inner-boom extension, two 10-inch-diameter double-acting lift cylinders with pilot-operated check valves, and a 58-inch-diameter ring gear with ball-bearing turntable. A 30,000-lb-capacity front winch is standard.

Versatility may be added with any of the available options which include: Isco/Ryd-A-Rail hydraulically operated road-to-rail conversion units; 50-, 75- or 100-ton service jacks; air-brake testing reservoir; revolving flasher lights; spotlights; and hydraulically operated 100-ton outrigger rams.

Circle 60 on reader service card

Anti-graffiti coating protects painted walls

A low-cost anti-graffiti coating protects painted walls from defacement. Recently introduced by Rainguard Products Co., the coating is a nonflammable, water-based, cross linked copolymer that forms a clear, non-yellowing film over exterior and interior painted walls that protects them from nearly all graffiti materials, including spray can paints. Called Vandl Guard, it makes graffiti easy to clean off, enhances the appearances and prolongs the life of weathered paint, is used to protect asphalt from such things as gasoline, prevents penetration of rust stains, protects aluminum from truck exhaust, and helps protect against sea air, salt spray, smog and fumes. The cost is about 5 cents per square foot of surface. Vandl Guard's normal coverage per gallon is about 400 square feet of surface per coat. Normally, two coats are applied. It is easily applied by brush, roller or spray or simply by wiping it on with a cloth or painter's mitt; it is available in 1-quart, 1-gallon and 5-gallon containers.

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These luminaires provide safety and security lighting

Safety and protective security lighting is provided by the Entraliter line of wall- and ceiling-mounted luminaires produced by the Lighting Division of Harvey Hubbell, Inc. The series—built for durable, economical lighting—features heavy-duty, die-cast aluminum housing, tamperproof screws and accessory stainless steel guards. Resilient high gasketing temperature seals out the elements and insects. The thermal shock and impact resistant refractor is made of strong borosilicate glass to assure illumination in areas requiring safe pedestrian or vehicle traffic or security against unwanted intruders. The luminaires utilizes efficient H.I.D. light sources up to 400 watts. Economical incandescent units are also available.

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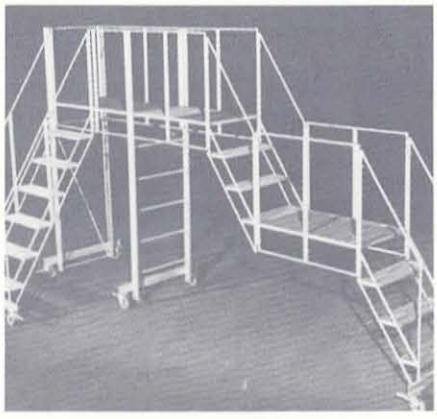
pany use the kits provide easy, on-site grade crossing installations. The kits range from simple setups to sophisticated systems. They include flashing lights, cantilevers, gates and all other equipment necessary to insure a safe crossing. All light units in the kits are pre-focused for maximum visibility; masts and crossarms are rewired for double security protection.

Circle 63 on reader service card

Heavy-duty lock is impervious to water and corrosion resistant

A new heavy-duty industrial lock from Miller Industries, Inc., is intended to increase security in the most economical way. The lock—Model 200—is a numberless combination lock suited for use in storage areas and on lockers and tool cribs. It is opened by counting clicks as the dial is turned, which means it can be easily opened in the darkest areas of any plant or storeroom. With a stainless steel front and back and a heavily plated case and shackle, the lock is completely corrosion resistant and impervious to water. The shackle is double-locking and hardened for added security. Miller locks are numbered serially and come with three-year warranties against defects in parts or workmanship. As a special order item, a limited choice on the face is available.

Circle 64 on reader service card



Access platform modules are easily assembled

The Ballymore Co.'s patented Bally-Mod system of access platform modules eliminates custom construction for railroad, marine and chemical processing application. Assembled, mobile Bally-Mod configurations conform to OSHA requirements. All components are interchangeable and can be added to or re-arranged at any time. The modules are shipped from off-the-shelf and easily assembled by the company's maintenance men on the site. Result is a tailor-made work platform, in place fast and at low cost.

Circle 65 on reader service card

NEW LITERATURE

TRANSIT CONTROLS. "Extensions of Control for Transit Systems" is a brochure describing new communications equipment applications for the mass transit industry. The 14-page color brochure has been issued by Motorola Communications and Electronics, Inc.

Circle 70 on reader service card

PASSENGER TRANSPORT. A trilingual international bibliography called "Unconventional Passenger Transportation Systems" has been published by the International Union of Public Transport, which is headquartered in Brussels, Belgium. The 306-page book systematically classifies 352 different passenger transportation systems in 2,425 bibliographical references. The bibliography costs 1,400 Belgian francs (about $38.50).

Circle 71 on reader service card

SEALANTS. A 12-page "Engineering Guide for Polysulfide Sealants in the Transportation Industry" has been published by the Chemical Division of Thiokol Chemical Corp. Tables, charts, diagrams and photos illustrate the various aspects of using such sealants.

Circle 72 on reader service card

ELECTRICAL CABLES. A 36-page, two-color catalog from Okonite Co. describes the firm's power, control and instrumentation cables and splicing materials.

Circle 73 on reader service card

TRANSMISSION SYSTEM. A 28-page technical bulletin provides complete information for the Lenkurt type 25 C data transmission system.

Circle 74 on reader service card

LINE AMPLIFIER. A 2-page brochure from Karkar Electronics covers a line amplifier and line equalizer assembly providing for interconnection of widely separated radio and multiplex equipments through the cable plant with the required equalization for either RG-11/U coaxial the cable or 124 ohm matched video pairs.

Circle 75 on reader service card

DATA COMMUNICATION. International Communications Corp. has published a 12-page illustrated catalog on data communication products. It contains descriptions of the company's high-speed modems and specialized communication system accessories.

Circle 76 on reader service card

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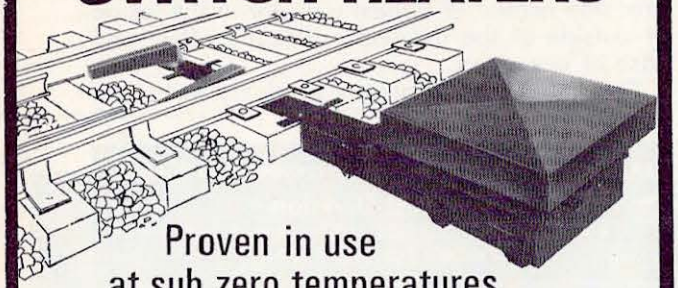

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Circle 39 on coupon page 59

(Continued from page 58)

Lenihan, vice president and general counsel; **James B. Clark,** vice president-personnel and labor relations; **C. Hayden Edwards,** vice president and treasurer.

James L. Williams elected general manager, **Georgia Railroad** and president, **Atlanta & West Point** and **Western of Alabama.**

Howard W. Martens elected president, Atlantic Land and Improvement Co., a land holding subsidiary.

The following appointments have been made on both SCL and L&N: **Robert F. Veselic,** district sales manager, Los Angeles. **Robert T. Jewell,** district sales manager and **C.A. Jolgen,** assistant district sales manager, Seattle, Wash.

SEACOAST TRANSPORTATION CO.—**Edwin H. Young,** superintendent of transportation, appointed general manager, Jacksonville, Fla.

SOUTHERN FREIGHT ASSOCIATION.—**R. Everett Thompson** appointed manager of commerce, Atlanta, Ga.

TERMINAL RAILROAD ASSN. OF ST. LOUIS.—**E.V. Duren** appointed vice president-mechanical and purchasing.

UNION PACIFIC.—**William S. Cook,** vice president-finance, New York, elected to the newly created post of executive vice president. **William J. McDonald,** vice president and general counsel, elected to the new position of senior vice president-law. **William F. Surette,** elected vice president-finance, succeeding Mr. Cook. Mr. Surette was formerly vice president and controller, Magnavox Co.

Joseph A. Peterson, structural engineer, named bridge engineer, Omaha.

Transit

Girard L. Spencer, Jr., has been appointed executive vice president and chief operating officer, URS/Coverdale & Colpitts, Inc., New York. Since joining the firm in October 1970 Mr. Spencer has directed studies in the areas of mass transportation, marine development and financing of new facilities in various transportation areas. Previously he had been chief of the Port Authority of New York and New Jersey, with responsibility for the planning and development of implementation of the PATH Rehabilitation Program.

Robert T. Pollock, general manager and chief executive officer, Cleveland Transit System, elected president, **American Transit Association;** and **Jack R. Gilstrap,** general manager, Southern California Rapid Transit District, Los Angeles, elected vice president.

Col. S.H. Bingham has joined **L.K. Comstock & Company, Inc.,** New York, as chief executive officer of the newly created Colonel S.H. Bingham Transportation Division.

Maurice A. Sulkin has been named program manager by **Daniel, Mann, Johnson & Mendenhall,** Los Angeles, for the firm's new people mover study for the Inter-American Center Authority in Miami, Fla. The study will develop a plan to move an estimated 30,000 people a day from Miami to the new 53-acre man-made island, "Interama," at the north end of Biscayne Bay. Mr. Sulkin has been a DMJM transportation projects director since 1970.

Anthony D. Rynties has been appointed chief utilities engineer, Washington (D.C.) Metropolitan Area Rapid Transit Project, **DeLeuw, Cather & Company.** Mr. Rynties has supervised utility planning and construction in conjunction with the 98-mile WMATA rapid transit system since 1973, and previously served as senior utilities engineer on the project.

Donald G. Glaser has been appointed manager of contracts and program control, Metro Construction Division, **Niagara Frontier Transportation Authority,** Buffalo, N.Y. Initially Mr. Glaser will concentrate his efforts on the preliminary design activity for the Buffalo-Amherst Rapid Transit Project.

Thomas Buck has been appointed director of public relations and marketing, **Chicago Transit Authority.** He was formerly a reporter and writer with the **Chicago Tribune.**

Obituary

Roy C. Munro, 90, retired vice president, **Waugh Equipment Co.,** died Oct. 14 in Chicago.

Earl B. Padrick, 71, retired chairman, **Transcontinental, Western and Southwestern Railroad Passenger Associations,** died Oct. 20 at his home in Evanston, Ill.

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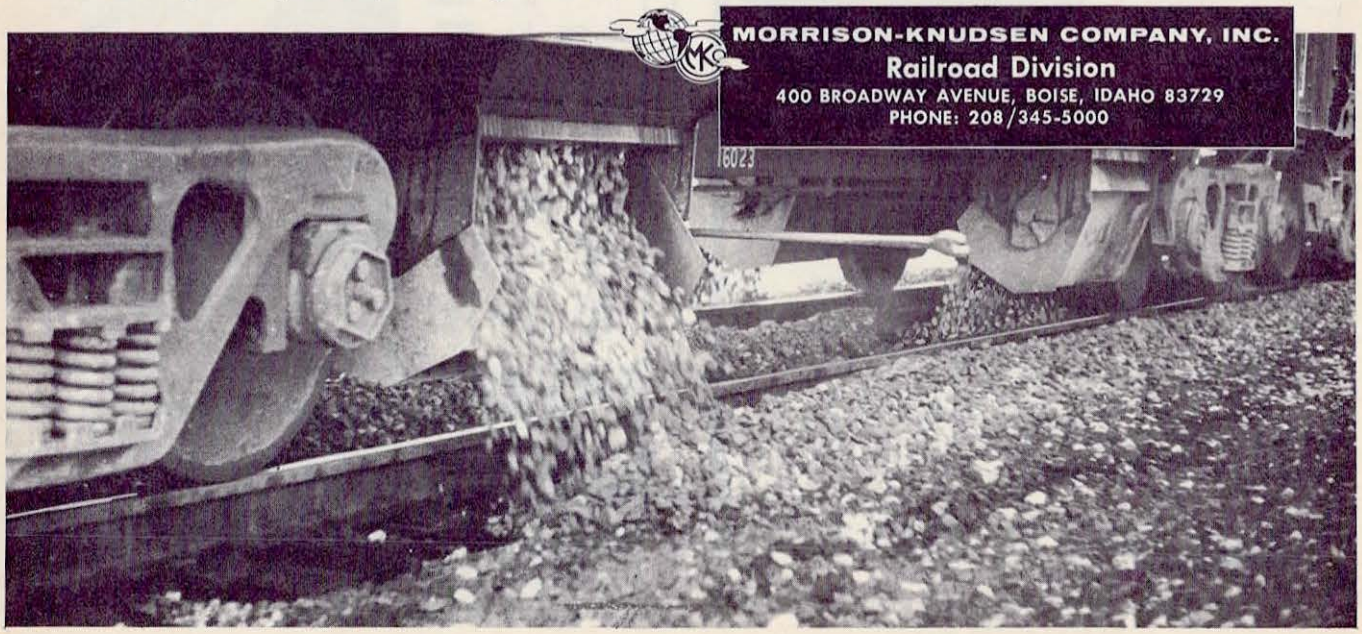


Circle 43 on coupon page 59

Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Oct. 20 totaled 568,605 cars, according to the Association of American Railroads. This was an increase of 9,654 cars, or 1.7%, compared with the previous week, and an increase of 13,647 cars, or 2.5%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Oct. 20 are estimated at 17.6 billion, an increase of 5.5% above the corresponding week of 1972. The ton-mile figure set a new all-time high for a single week, topping the record of 17.4 billion in the week ended Sept. 29.

REVENUE FREIGHT CARLOADINGS

Commodity	Oct. 20 week	Oct. 13 week
Grain	31,590	31,938
Farm products	17,135	14,669
Metallic ores	47,048	48,287
Coal	93,925	94,686
Crushed stone, gravel & sand	32,328	30,699
Nonmetallic minerals	16,313	15,814
Grain mill products	21,529	20,456
Food and kindred products	24,748	23,521
Primary forest products	24,566	24,685
Lumber & wood products (except furniture)	16,781	15,964
Pulp, paper & allied products	23,460	23,448
Chemicals & allied products	28,884	27,500
Petroleum products	8,838	9,018
Stone, clay & glass products	23,322	22,688
Coke	8,273	9,057
Metals & products	26,787	26,589
Motor vehicles & equipment	28,634	27,710
Waste & scrap materials	17,069	16,493
Forwarder & shipper assn. traffic	11,502	10,920
All other carloads	65,305	63,712
LCL traffic	568	541
Total cars loaded	**568,605**	**558,395**
Cumulative total, 42 weeks	1973	1972
	22,100,595	21,041,144
Estimated revenue ton-miles (billions) 42 weeks	681.5	626.3

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Oct. 13 totaled 30,953 cars (8.4% above the corresponding week last year) and 54,715 trailers or containers (up 10.8% from 1972). Cumulative volume for the first 41 weeks of 1973 is 1,202,068 cars (up 16.5% from last year) and 2,081,267 trailers or containers (up 19.8% from 1972).

IN CANADA

7 days ending	Tons of Revenue Freight	Cumulative Totals
Oct. 14, 1973	5,209,244	185,874,269
Oct. 14, 1972	4,362,139	162,384,606

● *Chicago & North Western.*—Ordered five 3,000-hp SD40-2 diesel-electric units from EMD at a cost of about $1.7 million.

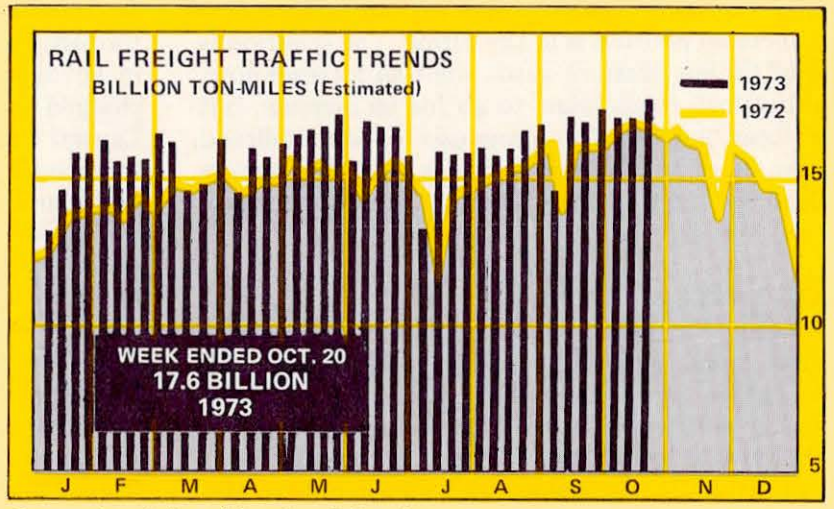
● *Erie Lackawanna.*—Has begun receiving 258 70-ton triple hopper cars from Greenville Steel Car. The cars are part of an order for 750 cars, total cost of which will be $10.1 million.

● *Illinois Central Gulf.*—Authorized acquisition of $20 million worth of materials for rolling stock and track programs. Expenditures will cover material for 150 60-ft box cars, 300 50-ft box cars, 200 100-ton gondolas and rebuilding 65 locomotive units. Also to be acquired are 31 carsets of bi-level auto racks and material for laying 103 miles of new rail.

● *Penn Central.*—Plans to acquire by lease 200 additional 100-ton, 3,000-cu-ft-capacity covered hopper cars for hauling dry bulk cement. The cars, valued at about $5.9 million, will be leased to PC by North American Car Corp. for an initial term of 15 years. Deliveries are scheduled to begin next March.

● *Freight-car orders and deliveries.*—The following report has been received from the AAR and the ARCI:

	Sept. '73	Aug. '73	Sept. '72
DELIVERED			
Built new by carbuilders	4,505	4,215	2,619
Built new in R.R. shops	292	249	580
Built new—total	4,797	4,464	3,199
Rebuilt	61	76	186
TOTAL DELIVERED	**4,858**	**4,540**	**3,385**
ORDERED			
To be built new by carbuilders	7,442	5,461	4,511
To be built new in R.R. shops	700	0	579
To be built new—total	8,142	5,461	5,090
To be rebuilt	5	0	0
TOTAL ORDERED	**8,147**	**5,461**	**5,090**
ON ORDER AND UNDELIVERED	**Oct. 1, '73**	**Sept. 1, '73**	**Oct. 1 '72**
To be built new by carbuilders	47,714	44,408	16,386
To be built new in R.R. shops	3,067	2,659	4,256
To be built new—total	50,781	47,067	20,642
To be rebuilt	176	232	1,775
TOTAL ON ORDER	**50,957**	**47,299**	**22,417**



Source: Association of American Railroads

Short and Significant (Continued from page 8)

1,215 DIESELS ADDED TO FLEET

In this year's first nine months, Class I railroads added 1,215 new diesel-electric locomotives to their fleet and retired 803, for a net increase of 412. As of Oct. 1, the diesel fleet totaled 27,240 units, compared with 26,828 last Jan. 1. Aggregate horsepower on Oct. 1 was 55,542,615, compared with 54,152,000 on Jan. 1. A total of 377 new locomotives are on order, and 63 are being rebuilt.

CN SENDS DESIGN TEAM TO BRAZIL

CANAC Consultants, the international consulting service of Canadian National and Air Canada, has sent 10 engineers to Brazil to help design a 610-mile railway through the Amazon River Basin to massive iron ore deposits just south of the equator. The new line will carry ore from the Serra dos Carajas deposit to the port of Ponta da Madeira for U.S. Steel and Brazilian Steel Co., CVRD. CANAC joined Lasa, a Brazilian engineering firm, in a consortium for the 18-month design project.

ADAMS ASKS ELECTRIFICATION STUDY

Rep. Brock Adams (D.-Wash.), chairman of the House Transportation Subcommittee, says he will offer an amendment to the proposed Surface Transportation Act calling for a Department of Transportation study of "the advantages and disadvantages of nationwide electrification of railroad lines." Said Adams: "It is time now to determine the availability of alternative sources of energy supply. Perhaps coal is not the best source of energy, and we should look to nuclear plants or even converted solar energy to supply electrical power for trains. In any case, we must develop new energy sources. Surely this type of advanced research and development is worthy of government support."

RATE HIKE REQUEST DUE—BUT WHEN?

Nearly all major railroads agree on one thing: a new rate-increase petition is in the offing. The question is one of timing. Western roads want an increase now. Southeastern roads want to go for an increase, but not immediately. The prognosis of one railroad officer close to the discussions is that the carriers will go for a 5% increase perhaps around next July 1.

EVERY LITTLE BIT HELPS...

Burlington Northern's grain-car fleet numbers about 40,000 units, and the total is going up by 425 cars—surplus stock cars which BN is cleaning and steaming and assigning to grain elevators. Elevator operators are committed to lining the cars with plywood (at their expense) and then removing the lining before the cars are turned back to BN. The cars have an 80,000-pound load restriction. And, says BN, they're "much in demand. In fact, we have more requests for them than we can fill"—in part because the fourth quarter is also BN's heaviest livestock-moving period, and most of the 3,000 units in the stock-car fleet are needed for the service for which they were built.

GETTING EMPTY BOXES BACK HOME—FAST

A plan implemented by Special Car Order 90 has been adopted by the Car Service Division of the AAR with the goal of speeding up the return of empty plain box cars to owning railroads in cases where the returning and home railroads are not contiguous. William H. Van Slyke, chairman of the division, said the plan was adopted after a year-long study of routings and the fair allocation of individual railroad responsibilities in the movement of empties from one road to another by the most direct route. The aim, said Van Slyke, is to reduce empty mileage and increase car supply. To monitor the plan and test its effectiveness, a computerized Car Movement Analysis (CMA) system has been developed. CMA, by analyzing information from the AAR's computerized freight-car information program, will provide the Car Service Division with up-to-date information on interline box-car movements.

ANOTHER TOFC/COFC EXPANSION

Santa Fe is spending $1.5 million for expansion of its piggyback facilities at Houston, adding two new 10-car tracks, thus doubling the number of cars that can be spotted for loading/unloading at one time. Trailer-parking spaces have been increased from 100 to more than 540. And the new tracks are spaced so as to permit loading/unloading from either side.

FROM WORSE TO BAD

Northeastern bankrupts were not losing as much through the first three quarters of 1973 as they had in 1972, but this was no great consolation for those charged with these roads' reorganization. Penn Central cut its net loss by 25% to $131.4 million in three quarters and Reading's reduction was 32% to $10.5 million. Through eight months Erie Lackawanna cut its deficit by just over 50% to $10.8 million on a fully accrued basis. All three roads reported increased revenues in 1973 and noted the negative effects of Hurricane Agnes on 1972 results. PC's September results were affected adversely by the Chrysler strike but still its operating ratio for the month was 78.8%, down from 81.7% in September 1972. Reading's September loss was actually up from 1972, primarily because of the effects of the Canadian rail shutdowns.

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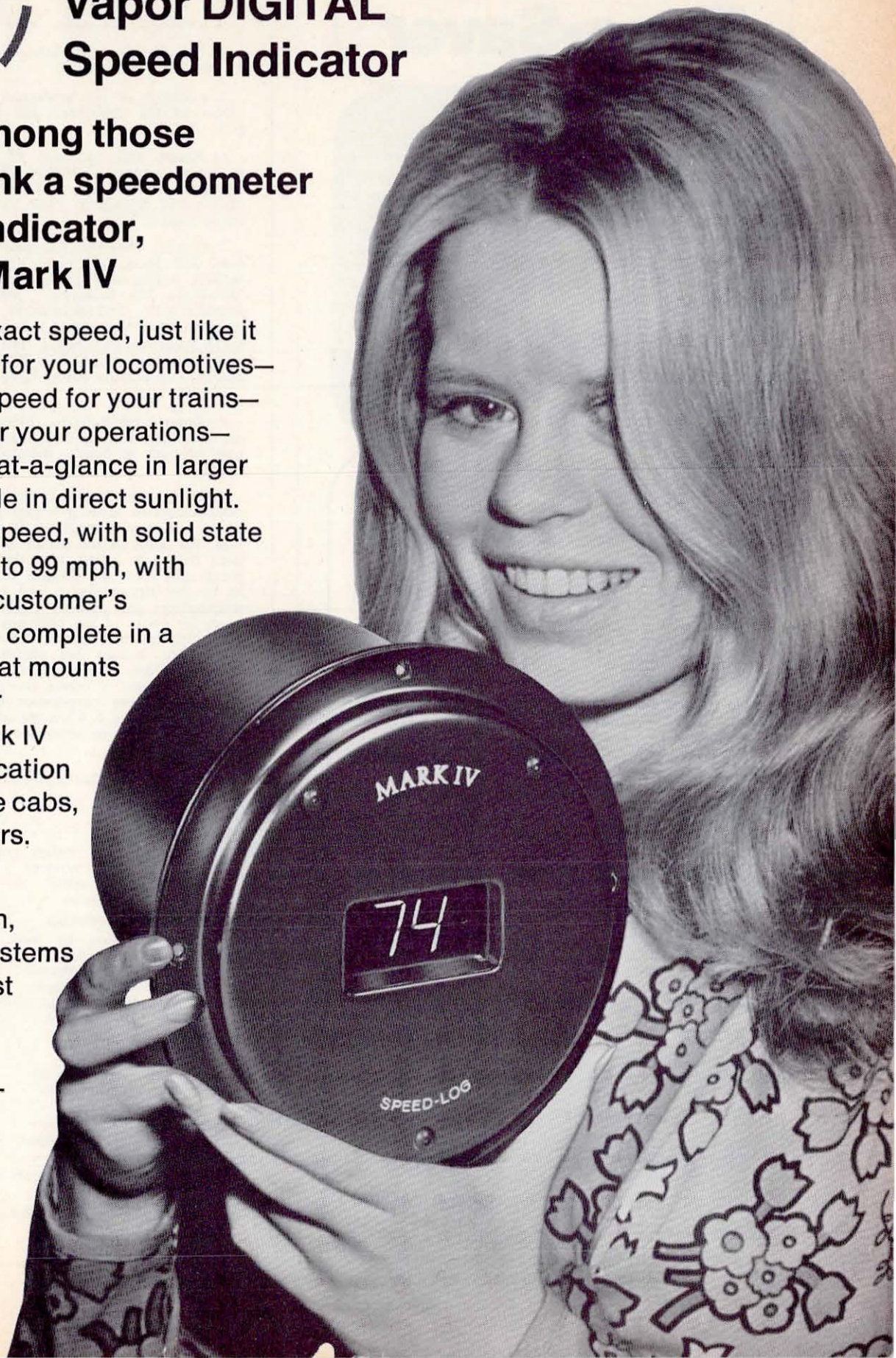

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Circle 41 on coupon page 59

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Circle 42 on coupon page 59

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1. Date of filing, Sept. 28, 1973

2. Title of publication: RAILWAY AGE.

3. Frequency of issue: Semi-monthly.

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6. Names and addresses of publisher, editor, and managing editor; Publisher Robert G. Lewis, 350 Broadway, New York, N.Y. 10013; Editor: Luther S. Miller, 350 Broadway, New York, N.Y. 10013; Managing Editor: None.

7. Owner: Simmons-Boardman Publishing Corporation, 350 Broadway, New York, N.Y. 10013—Stockholders having one percent or more are: Arthur J. McGinnis, 350 Broadway, New York, N.Y. 10013; Morton & Co., P.O. Box 2400. Church Street Station, New York, N.Y. 10008; Joseph or Katherine Sanders, 6010 Prestonshire, Dallas, Texas 75225; Torsel Company, 39 Broadway, New York, N.Y. 10006; Judith Marks, 140 Station Road, Great Neck, N.Y. 10023.

8. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities: None.

9. Paragraphs 7 and 8 include, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Names and addresses of individuals who are stockholders of a corporation which itself is a stockholder or holder of bonds, mortgages or other securities of the publishing corporation have been included in paragraphs 7 and 8 when the interests of such individuals of the stock or securities of the publishing corporation.

10. Extent and nature of circulation:

A. Total No. copies printed **(Net Press Run)**	21,527	25,025
B. Paid Circulation		
1. Sales through dealers and carriers, street vendors and counter sales	—	—
2. Mail subscriptions	14,722	14,761
C. Total paid circulation	14,722	14,761
D. Free distribution by mail, carrier or other means		
1. Samples, complimentary, and other free copies	6,449	9,823
2. Copies distributed to news agents, but not sold	—	—
E. Total distribution **(Sum of C and D)**	21,171	24,584
F. Office use, left-over, unaccounted, spoiled after printing	356	441
G. Total **(Sum of E & F—should equal net press run shown in A)**	21,527	25,025

I certify that the statements made by me above are correct and complete.

(Signed) Robert G. Lewis, Publisher

Advertisers Index

ACF Industries, Inc. 31, 53
ACI Systems Corp. 54-57
American Steel Foundries 44-45
American Telephone & Telegraph Company 14-15
Atlantic Richfield . . . . . IFC
AMP Special Industries 47
Bethlehem Steel Corp. 3
Boeing Vertol Company 38-39
Brenco, Inc. 12
Career Apparels, Inc. 61
CF&I Steel Corp. 42
The Garrett Corporation 9
Ernest Holmes Co. 24-25
Houdaille Industries, Inc. 4
Isco Manufacturing Company 58
The Kerite Company . . . . . IBC
Koppers Company, Inc. 28
Morrison-Knudsen Company, Inc. 62
Pullman, Inc. 17-22
RCA Electronic Components Industrial Replacement Tubes 37
The Rails Company 61
Railway Educational Bureau 23
Schramm, Inc. 6
Servo Corporation of America 34-35
Frank Speno Railroad Ballast Cleaning Co., Inc. 61
Standard Steel 11
The Timken Company 32-33
Vapor Corp. 65
Westinghouse Air Brake Co. . . . . 29, BC
Whiting Corporation 66

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Viewpoint

"It may not work, but let's give it a try"

The magic words in any technologically-oriented enterprise today are "research and development," and the magic really is there, and it's great that railroads and rail suppliers and even government are pouring more money into R&D. It can't hurt.

At the same time, neither railroads nor anybody else concerned with the future of rail transportation can afford to neglect what might be called the software—the kind of "R&D" that involves no laboratories except the laboratories of the mind.

Consider just some of the kinds of idea-experiments that are going on:

—Scoffed at though it has been, for lack of concrete accomplishment, Illinois Central Gulf's JOBS Commission has not been a failure. Management and labor talk. Mutual understanding sooner or later improves. And if ICG has not been able to do an awful lot, it has perhaps been able to do more than roads where there is no dialogue.

—One or a few railroads are trying to run trains in a totally different fashion, dispatching more by the clock than by the time-honored method of sending everything out when all the business pours in. One railroad president is said to have told his operating people something to the effect that "it may not work, but let's give it a try." If there were a hall of fame for railroad presidents, that one should be a charter member.

—Missouri Pacific, rail labor, AAR and FRA are trying to do something in St. Louis about getting cars through terminals faster and with a generally more efficient operation. All concerned may fall flat on their backsides, but they're going to be trying, and it *is* a joint undertaking.

—Marketing people on railroads all around are going out after business that for a long time hasn't been railroad business, because of rates or service or something. They're winning more than a few battles, and they're bringing in business that makes money.

—Railroads are backing up plans, ideas with dollars. They're spending money on equipment, on fixed plant, as they haven't in more than a few years, and the Nov. 26 issue of Railway Age will document this. Suffice it for now to say Dec. 31, 1974, will see the industry in a lot better physical shape than it is in now.

What does all this mean? Most simply, it means that this is an industry that isn't shopping around for an undertaker. It also means, however, that all the diverse interests—diverse on the surface, that is—should be pitching in. In sloganeering terms, if you can help, help. If you can't help, at least don't hinder.

TECHNOLOGY PLUS IDEAS EQUALS PROGRESS

The point really is that the business of railroading—the business of transportation—is ideas, ideas that are working increasingly well with hardware, the tangible part of R&D. As just one example, going to an hourly or six-hour or even eight-hour per diem setup might have been impossible, B.C., which is Before Computers. Now, there seems to be no insurmountable technical problem, and technology and thought-process may come to a common point. Per diem is one example. There are many that could be cited.

Maybe it all comes down to the catch-phrase used by the Alka-Seltzer people: Try it, you'll like it. And even if you don't eventually like it, at least give it a try. That key word again: Try.

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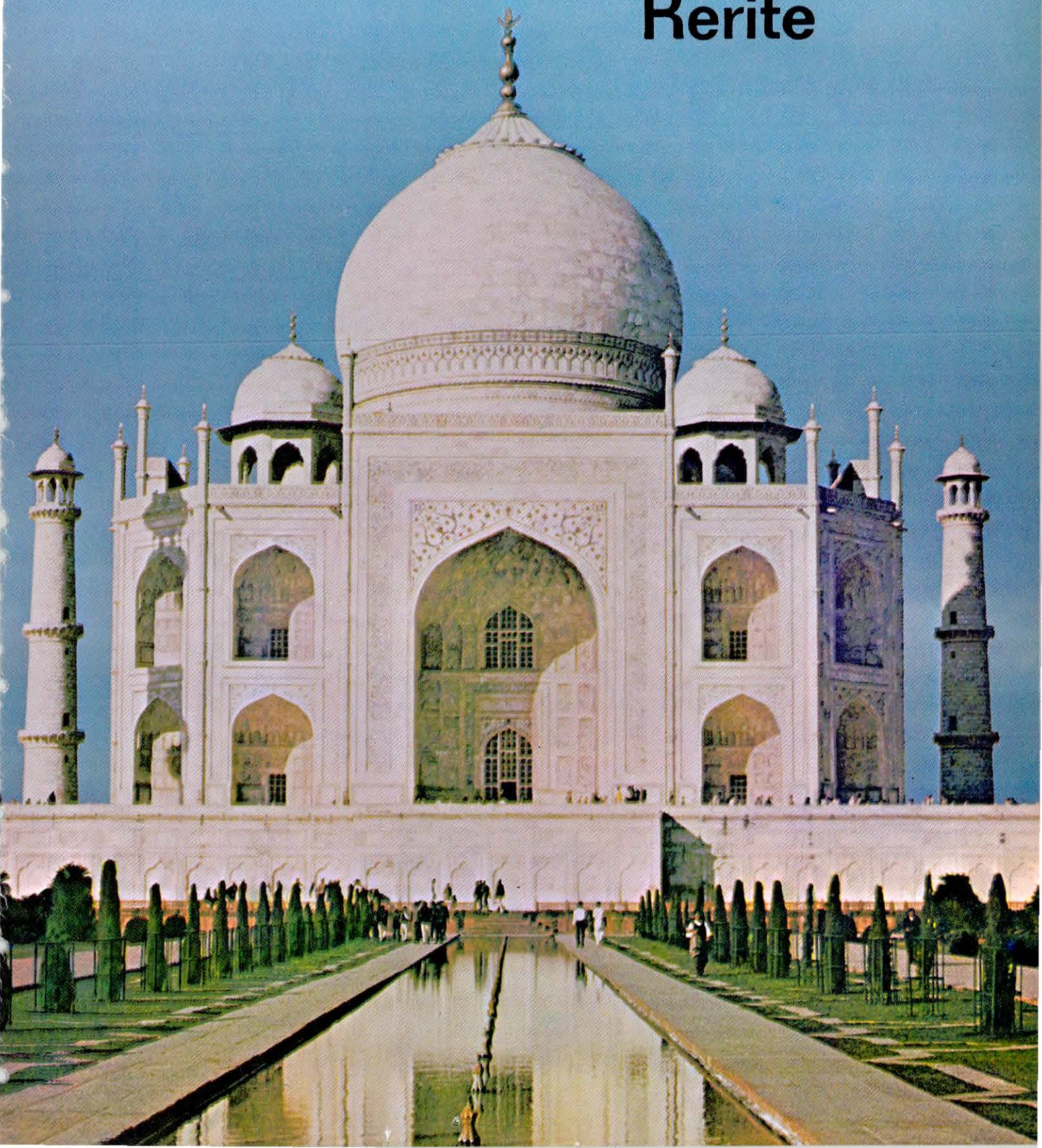

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